Access DB# 94626

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Terrence MacKay Examiner #: 66254 Date: 5/21/03
Art Unit: 1765 Phone Number 30 Serial Number: 10/003240
Mail Box and Bldg/Room Location: CP3 9E19 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: _____

Inventors (please provide full names): _____

_____

Earliest Priority Filing Date: _____

For Sequence Searches Only *Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

****

STAFF USE ONLY	Type of Search		Vendors and cost where applicable	
Searcher:	ES	NA Sequence (#)		STN $180.17
Searcher Phone #:		AA Sequence (#)		Dialog
Searcher Location:		Structure (#)		Questel/Orbit
Date Searcher Picked Up:		Bibliographic	✓	Dr.Link
Date Completed:	5-23-03	Litigation		Lexis/Nexis
Searcher Prep & Review Time:	5	Fulltext		Sequence Systems
Clerical Prep Time:		Patent Family		WWW/Internet
Online Time:	80	Other		Other (specify)

PTO-1590 (8-01)

along with the appropriate serial number.

- Provide examples or give us relevant citations, authors, etc., if known.
- FAX or send the **abstract, pertinent claims** (not all of the claims), **drawings, or chemical structures** to your EIC or branch library.

Enter your Search Topic Information below:

an etchant comprising:
(1) a heterocyclic compound selected from pyrrole, imidazole, oxazole, thizole, pyrazole, 3-pyrroline, pyrrolidine, and n-methyl pyrrolidone
(2) ammonium hydroxide (or methyl ammonium hydroxide or tetra methyl ammonium hydroxide)
(3) an oxidizer selected from ozone, hydrogen peroxide, and hydrogen peroxide-containing complexes
(4) a metal halide compound (such as potassium fluoride)

the etchant is used for etching stacked metallic layers which will serve as a ball limiting metallurgy (BLM) electrical interconnect region of an integrated circuit.

Special Instructions and Other Comments:
(For fastest service, let us know the best times to contact you, in case the searcher needs further clarification on your search.)

Monday - Friday 7:00am - 4:30pm

Press ALT + F, then P to print this screen for your own information.

SEND RESET

```
=> file reg
FILE 'REGISTRY'
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2003 American Chemical Society (ACS)


=> display history full l1-


     FILE 'REGISTRY'
                  E PYRROLE/CN
L1              1 SEA PYRROLE/CN
                  E IMIDAZOLE/CN
L2              1 SEA IMIDAZOLE/CN
                  E OXAZOLE/CN
L3              1 SEA OXAZOLE/CN
                  E THIAZOLE/CN
L4              1 SEA THIAZOLE/CN
                  E PYRAZOLE/CN
L5              1 SEA PYRAZOLE/CN
                  E 3-PYRROLINE/CN
L6              1 SEA 3-PYRROLINE/CN
                  E PYRROLIDINE/CN
L7              1 SEA PYRROLIDINE/CN
                  E N-METHYL PYRROLIDONE/CN
                  E N-METHYLPYRROLIDONE/CN
L8              1 SEA N-METHYLPYRROLIDONE/CN
                  E AMMONIUM HYDROXIDE/CN
L9              1 SEA "AMMONIUM HYDROXIDE"/CN
                  E METHYL AMMONIUM HYDROXIDE/CN
                  E TETRAMETHYL AMMONIUM HYDROXIDE/CN
                  E TETRAMETHYLAMMONIUM HYDROXIDE/CN
L10             1 SEA "TETRAMETHYLAMMONIUM HYDROXIDE"/CN
                  E METHYLAMMONIUM HYDROXIDE/CN
L11             1 SEA "METHYLAMMONIUM HYDROXIDE"/CN
                  E DIMETHYLAMMONIUM HYDROXIDE/CN
L12             1 SEA "DIMETHYLAMMONIUM HYDROXIDE"/CN
                  E TRIMETHYLAMMONIUM HYDROXIDE/CN
L13             1 SEA "TRIMETHYLAMMONIUM HYDROXIDE"/CN
L14             4 SEA (L10 OR L11 OR L12 OR L13)
                  E OZONE/CN
L15             1 SEA OZONE/CN
                  E HYDROGEN PEROXIDE/CN
L16             1 SEA "HYDROGEN PEROXIDE"/CN
                  D RN
L17           710 SEA 7722-84-1/CRN
L18           629 SEA L17 NOT PMS/CI
L19           631 SEA L15 OR L16 OR L18
L20          7288 SEA (M(L)X)/ELS (L) 2/ELC.SUB
L21             8 SEA (L1 OR L2 OR L3 OR L4 OR L5 OR L6 OR L7 OR L8)
```

FILE 'HCA' ENTERED AT 21:52:34 ON 23 MAY 2003
L22 41666 SEA L21

FILE 'REGISTRY' ENTERED AT 22:00:06 ON 23 MAY 2003
E AMMONIA/CN
L23 1 SEA AMMONIA/CN

FILE 'HCA' ENTERED AT 22:00:21 ON 23 MAY 2003
L24 83730 SEA L14 OR NH4OH OR ME4NOH OR MENH3OH OR MENH2OH OR ME2NH2OHOR ME2NHOH OR ME3NHOH OR ME3NOH OR (AMMONIUM# OR METHYLAMMONIUM# OR DIMETHYLAMMONIUM# OR TRIMETHYLAMMONIUM # OR TETRAAMMONIUM# OR TETRAMMONIUM#)(A)(HYDROXIDE# OR MONOHYDROXIDE#)
L25 19794 SEA (AQ# OR AQUEOUS?)(2A)(L23 OR AMMONIA# OR NH3)
L26 261223 SEA L19 OR OZONE# OR O3 OR OZONOLY? OR HYDROGEN#(A)PEROXI DE# OR H2O2
L27 525596 SEA L20 OR (METAL#### OR M)(A)(HALIDE# OR DIHALIDE# OR TRIHALIDE# OR TETRAHALIDE# OR FLUORIDE# OR DIFLUORIDE# OR TRIFLUORIDE# OR TETRAFLUORIDE# OR CHLORIDE# OR DICHLORIDE# OR TRICHLORIDE# OR TETRACHLORIDE#) OR MX OR MX2 OR MX3 OR MX4 OR MX5
L28 7459 SEA (METAL#### OR M)(A)(BROMIDE# OR DIBROMIDE# OR TRIBROMIDE# OR TETRABROMIDE# OR IODIDE# OR DIIODIDE# OR TRIIODIDE# OR TETRAIODIDE# OR MONOHALIDE# OR MONOFLUORIDE # OR MONOCHLORIDE# OR MONOBROMIDE# OR MONOIODIDE#)
L29 8 SEA L22 AND (L24 OR L25) AND L26 AND (L27 OR L28)
L30 208986 SEA ETCH? OR MICROETCH? OR PHOTOETCH? OR ENGRAV? OR MICROENGRAV? OR PHOTOENGRAV? OR EMBOSS? OR CHASE# OR CHASING# OR ENCHAS? OR INCISE# OR INCISING# OR IMPRESS? OR IMPRINT? OR ENCAUSTIC?
L31 2 SEA L29 AND L30
L32 QUE OXIDA? OR OXIDI? OR OXIDN#
L33 9 SEA L22 AND (L24 OR L25) AND L32 AND (L27 OR L28)
L34 2 SEA L33 AND L30
L35 141282 SEA PYRROLE# OR IMIDAZOLE# OR OXAZOLE# OR THIAZOLE# OR PYRAZOLE# OR PYRROLINE# OR PYRROLIDINE# OR (METHYL# OR ME)(A)PYRROLIDONE# OR METHYLPYRROLIDONE#
L36 26 SEA L35 AND (L24 OR L25) AND (L26 OR L32) AND (L27 OR L28)
L37 2 SEA L36 AND L30
L38 2 SEA L31 OR L34 OR L37
L39 11 SEA (L29 OR L33) NOT L38
L40 17 SEA L36 NOT (L38 OR L39)

=> file hca
FILE 'HCA'
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

=> d l38 1-2 ibib abs hitstr hitind

L38 ANSWER 1 OF 2 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 138:330173 HCA
TITLE: **Etchant** formulation for selectively removing thin films in the presence of copper, tin, and lead
INVENTOR(S): Danielson, Donald; Huang, Tzeun-Iuh; Scovell, Dawn L.; Willis, Keith
PATENT ASSIGNEE(S): Intel Corporation, USA
SOURCE: U.S. Pat. Appl. Publ., 11 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

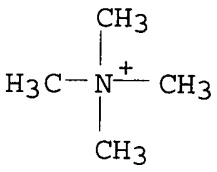
PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003082913	A1	20030501	US 2001-3240	20011026

PRIORITY APPLN. INFO.: US 2001-3240 20011026

AB The present invention relates to elec. connection technol. In particular, an embodiment of the present invention relates to **etching** a ball-limiting metallurgy in the presence of lead, tin, and copper. The BLM stack is provided for an elec. device that contains an Al layer disposed upon a metal 1st layer. A metal upper layer is disposed above the metal 2nd layer, and an alternative metal 3rd layer is disposed between the metal 2nd layer and the metal upper layer. The **etching** system and process uses an **etching** soln. that includes a N-contg. heterocyclic compd., an **NH4OH** compd., an **oxidizer**, and a **metal halide** compd. **Etching** conditions prevent any metalization that is dissolved from redepositing, thus avoiding lowered yields.

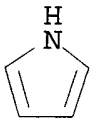
IT **75-59-2**, Tetramethyl **ammonium hydroxide**
109-97-7, **Pyrrole** **123-75-1**,
Pyrrolidine, processes **288-13-1**, **Pyrazole**
288-32-4, **Imidazole**, processes **288-42-6**,
Oxazole **288-47-1**, **Thiazole**
7722-84-1, **Hydrogen peroxide**, processes
7789-23-3, Potassium fluoride **10028-15-6**,
Ozone, processes **177428-67-0**, Methyl
ammonium hydroxide
(**etchant** formulation contg.; **etchant** formulation for selectively removing thin films in presence of copper, tin, and lead)

RN 75-59-2 HCA
CN Methanaminium, N,N,N-trimethyl-, hydroxide (9CI) (CA INDEX NAME)

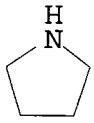


OH^-

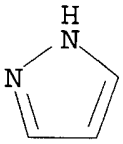
RN 109-97-7 HCA
CN 1H-Pyrrole (9CI) (CA INDEX NAME)



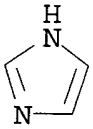
RN 123-75-1 HCA
CN Pyrrolidine (8CI, 9CI) (CA INDEX NAME)



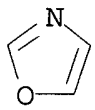
RN 288-13-1 HCA
CN 1H-Pyrazole (9CI) (CA INDEX NAME)



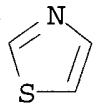
RN 288-32-4 HCA
CN 1H-Imidazole (9CI) (CA INDEX NAME)



RN 288-42-6 HCA
CN Oxazole (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 288-47-1 HCA
CN Thiazole (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 7722-84-1 HCA
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

RN 7789-23-3 HCA
CN Potassium fluoride (KF) (9CI) (CA INDEX NAME)

F—K

RN 10028-15-6 HCA
CN Ozone (8CI, 9CI) (CA INDEX NAME)

O—O—O

RN 177428-67-0 HCA
CN Methanamine, monohydrate (9CI) (CA INDEX NAME)

$H_3C—NH_2$

H_2O

IC ICM H01L021-461
NCL 438690000
CC 76-3 (Electric Phenomena)
ST **etchant** formulation selective **etching** copper tin lead
IT **Etching**
(ball-limiting metallurgy; **etchant** formulation for

selectively removing thin films in presence of copper, tin, and lead)

IT **Oxidizing** agents
(**etchant** formulation contg.; **etchant** formulation for selectively removing thin films in presence of copper, tin, and lead)

IT Alkaline earth halides
Halides
Heterocyclic compounds
(**etchant** formulation contg.; **etchant** formulation for selectively removing thin films in presence of copper, tin, and lead)

IT Bump contacts
Films
(**etchant** formulation for selectively removing thin films in presence of copper, tin, and lead)

IT **Etching**
(**etchants**; **etchant** formulation for selectively removing thin films in presence of copper, tin, and lead)

IT Refractory metals
(**etching** of; **etchant** formulation for selectively removing thin films in presence of copper, tin, and lead)

IT Cerium alloy, base
Chromium alloy, base
Cobalt alloy, base
Hafnium alloy, base
Lanthanum alloy, base
Molybdenum alloy, base
Nickel alloy, base
Palladium alloy, base
Platinum alloy, base
Scandium alloy, base
Titanium alloy, base
Tungsten alloy, base
Yttrium alloy, base
Zirconium alloy, base
(**etching** of; **etchant** formulation for selectively removing thin films in presence of copper, tin, and lead)

IT **75-59-2**, Tetramethyl **ammonium hydroxide**
96-42-4, 3-Pyrrolidone **109-97-7**, **Pyrrole**
120-94-5, N-Methyl **pyrrolidine** **123-75-1**, **Pyrrolidine**, processes **288-13-1**, **Pyrazole**
288-32-4, **Imidazole**, processes **288-42-6**, **Oxazole** **288-47-1**, **Thiazole** 1336-21-6D, **Ammonium hydroxide**, derivs. **7722-84-1**, **Hydrogen peroxide**, processes **7789-23-3**, Potassium fluoride **10028-15-6**, **Ozone**, processes **177428-67-0**, Methyl **ammonium hydroxide**
(**etchant** formulation contg.; **etchant**

formulation for selectively removing thin films in presence of copper, tin, and lead)

IT 11110-87-5 12788-64-6 56404-84-3 58049-12-0 59124-15-1
(**etching** of; **etchant** formulation for selectively removing thin films in presence of copper, tin, and lead)

IT 37304-73-7 154304-08-2
(solder; **etchant** formulation for selectively removing thin films in presence of copper, tin, and lead)

L38 ANSWER 2 OF 2 HCA COPYRIGHT 2003 ACS
ACCESSION NUMBER: 49:15976 HCA
ORIGINAL REFERENCE NO.: 49:3137a-i,3138a-i,3139a-i,3140a-i,3141a-i,3142a-i,3143a-i,3144a-i,3145a-i,3146a-i,3147a-i,3148a-i,3149a-i,3150a-i,3151a-b
TITLE: **Oxazoles** and oxazolones
AUTHOR(S): Cornforth, J. W.; Clarke, H. T.; et al.
CORPORATE SOURCE: Oxford Univ.;Princeton Univ. Press
SOURCE: Chemistry of Penicillin (1949) 688-848
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
GI For diagram(s), see printed CA Issue.

AB **OXAZOLE** SECTION: New methods for constructing the **oxazole** ring have been devised and the behavior of functional groups elucidated. The synthesis of **oxazoles** and **imidazoles** from K .beta.-hydroxy-.alpha.-(.alpha.-alkoxyalkylideneamino)acrylates is given. A mixt. of 51.1 g. AmCN and 24.5 g. EtOH was kept with 19.2 g. dry HCl below 0.degree. for 2 weeks, decompd. with 74 g. K2 CO3 in Et2O and distd. The crude AmC(OEt):NH (62.4 g.), b11 52-65.degree., was shaken with cold aq. H2NCH2CO2Et.HCl for 1 hr. The upper layer was fractionated to yield Et .alpha.-ethoxycaprylideneaminoacetate (I),b0.5 91.degree., sapond. on gentle warming to AmCO2Et. The corresponding Me .alpha.-methoxycaprylideneaminoacetate (Ia), b0.1 74.degree., was similarly prepd. A soln. of 0.85 g. K in 2.5 g. EtOH and 14 g. Et2O was dild. to 50 ml. with Et2O, cooled to -15.degree. and treated with a similarly cooled mixt. of 4.85 g. I and 3.2 g. HCO2Et, yielding after 3 hr. at -10.degree., 2.6 g. of hygroscopic needles of C5H11C(OEt):NC(CO2Et):CHOK (II). The corresponding K Me .beta.-hydroxy-.alpha.(.alpha.-methoxycaprylideneamino) acrylate (IIa) was obtained in 3.2 g.-yield from 3.75 g. Ia. Treatment of 2.6 g. II and 1.25 g. DL-penicillamine in 5 cc. EtOH with alc.-HCl gave cryst. DL-N-caproylpenicillamine, m. 137-8.degree.. Treatment of II with ethereal HCl produced Et 2-amyloxazole-4-carboxylate, b0.07 99.degree. (dinitrophenyl-hydrazone, m. 165-6.degree.; amide, m. 152.degree.) sapond. to 2-amyloxazole-4-carboxylic acid, m. 92-3.degree. (PhNH2 salt. m.98.5-9.5.degree.) readily decarboxylated to 2-amyloxazole, b. 172-3.degree.; picrate, m. 84.5-5.5.degree.. This general synthesis of 2-sub-stituted **oxazoles** and their 4-carboxylic acids has been extended to Et 2-phenyloxazole-4-carboxylate, m. 69-70.degree., the corresponding acid, m. 209.degree., and carried through to the known

2-phenyloxazole. The method can be also applied to the synthesis of **imidazoles**. Treatment of I with aq. **NH4OH** gave 2-amylimidazole-4-carboxylic acid, m. 230.degree. (decompn.); with MeNH2.HCl or alc. H2NCH2CO2Et.HCl, I produced, resp., Et 2-amyl-1-methylimidazole-4-carboxylate (III), m. 42-3.degree., and Et 2-amylimidazole-4-carboxylate-1-acetate (IIIa), m. 61.degree.. Similarly, Ia gave Me 2-amyl-1-methylimidazole, m. 66.7.degree., and Me 2-amylimidazole-4-carboxylate-1-acetate, m. 107.degree.. Hydrolysis of III and IIIa yielded 1-methyl-2-amylimidazole-4-carboxylic acid, m. 121-3.degree., and 2-amyl-4-carboxyimidazole-1-acetic acid, m. 132-4.degree.. Starting from PhCH2CN, Et 2-benzylimidazole-4-carboxylate-1-acetate, m. 111-2.degree., was likewise prepd., converted by treating with MeOH into a Me Et ester. On heating with aq. **NH4OH** and with PhNH2, 2-amyloxazole-4-carboxylic acid was converted into 2-amylimidazole, m. 33-4.degree. and 1-phenyl-2-amylimidazole, m. 143-4.degree.. Synthesis of **oxazoles** by rearrangement of oxazolones. The Na salt of 2-benzyl-4-hydroxymethylene-5-oxazolone (2.7 g.) in 50 ml. abs. MeOH was treated with 5 ml. abs. Et2O contg. 0.38 g. HCl. The gummy product (2.28 g.) was taken up in 10 ml. abs. MeOH and heated for 30 min. with 6.2 ml. H2O contg. 0.42 g. NaOH. The residue on evapn. was dissolved in 10 ml. of iced H2O, acidified with dil. HCl to pH 6.5 and extd. with Et2O, yielding 700 mg. 2-benzyloxazole-4-carboxylic acid, m. 158.degree.. On heating at 220.degree., crude 2-phenyl-4-(.alpha.-hydroxyethylidene)-5-oxazolone rearranged to 2-phenyl-5-methyloxazole (IV), m. 184-5.degree. (decompn.). Similarly, on heating to 230.degree., Na 4-hydroxymethylene-g-amyl-5-oxazolone rearranged to 2-amyloxazole-4-carboxylic acid. Evapn. of 2-(1-pentenyl)-4-(hydroxymethylene)-5-oxazolone in NaOH and fusion of the residue at 250.degree. under reduced pressure yielded 2-pentenyloxazole-4-carboxylic acid, m. 145-7.degree.. Incidental syntheses of **oxazole** derivs. The action of PhSO3Ag on Me thiobenzylpenaldate di-Et acetal produced colorless prisms of 2-benzyloxazole-4-carboxylic acid, m. 156-7.degree. and the dehydration of Et .alpha.-benzylamino-acetoacetate gave Et 2-phenyl-5-methyloxazole-4-carboxylate, m. 51-2.degree., hydrolyzed to the acid, m. 180-1.degree., decarboxylated at 220.degree. in the presence of a trace of CuO to IV. Thus a reaction known to succeed with .alpha.-acylamino ketones and carboxylic esters is extended to .beta.-keto esters. The 2-substituted **oxazoles** and their 4-carboxylic acids and esters are feebly basic, readily **oxidized** by cold aq. KMnO4 but stable to Br in CCl4. The ring opens on warming with 2,4-(O2N)2-C6H3NHNH2 in 2N HCl with a tendency to formation of glyoxal osazone derivs. Rosenmund reduction of 2-amyloxazole-4-carboxylic acid chloride produced 2-amyloxazole-4-carboxaldehyde, b8 108.degree. (2,4-dinitrophenylhydrazone, m. 172-3.degree.), converted by warming with D-penicillamine-HCl in AcOH to the thiazolidine, devoid of antibiotic properties. From the corresponding Et ester, 2-benzyl-4-carboxyoxazole hydrazide, m. 81-3.degree. and benzylamide, m. 121-2.degree. were prepd. In attempts to synthesize

the thiazolidine-oxazolone structure for penicillin, attention was directed to the prepn. of 5-alkoxyoxazoles and many variations of the general method of dehydrating .alpha.-acylamino esters with P2O5 were introduced. By the use of PCl5, P2O5, POCl3, SOCl2, and PhSO2Cl, the following new **oxazoles** were prepd. (substituent given): 2-Ph, 5-MeO, b9 141.degree.; 2-Ph, 5-PhCH2O, m. 56.degree.; 2-PhCH2, 5-EtO, b15 152-4.degree.; 2-PhCH2, 5-MeO, m.31-2.degree.; 2-Am, 5-EtO, b0.8 82-5.degree.; 2-Am, 5-MeO, b1.0 60-65.degree.; 2-(1-C5H9), 5-EtO, b20 125-8.degree. (C5H9 = pentenyl); 2-(1-C5H9), 5-MeO, b15 108-10.degree.; 2-PhCH:CH, 5-EtO, m. 35.degree.; 2-PhCH:CH, 5-Ph CH2O, picrate, m. 135.degree. (decompn.); 2-Ph, 4-Me, 5-EtO, b10 151.degree.; 2-Ph, 4-Me, 5-PhCH2O, picrate, m. 112-13.degree.; 2-PhCH2, 4-Me, 5-EtO, b15 145-50.degree.; 2-Am, 4-Me, 5-EtO, b3 92.degree.; 2,4-Ph2, 5-EtO, m. 47-8.degree.; 2-Ph, 4-PhCH2, 5-EtO, picrate, m. 105.degree.; 2-Ph, 4-PhCH2, 5-PhCH2O, picrate, m. 117.degree.; 2,4-(PhCH2)2, 5-EtO, b0.3 145-50.degree.; 2-Am, 4-PhCH:CH, 5-EtO, m. 92.degree.; 2-Ph, 4-CO2Et, 5-EtO, m. 75.degree.; 2-Am, 4-CO2Et, 5-EtO, b0.1 122-5.degree.; 2-(1-C5H9), 4-CO2Et, 5-EtO, b0.2 125.degree.; 2-PhCH2, 4-CO2Et, 5-EtO, b0.1 165.degree.. The possibility of converting an alkoxyoxazole to the corresponding oxazolone was realized by the catalytic hydrogenation of 2 g. of 2-phenyl-5-benzyloxyoxazole in 30 ml. dry dioxane in the presence of Pd-black to 2-phenyl-5-oxazolone, m. 91.degree.. The converse reaction, transformation of an oxazolone to an alkoxyoxazole, has also been achieved. Methylation of 3 g. of 2-phenyl-4-carbethoxy-5-oxazolone with 500 mg. CH2N2 in 50 ml. Et2O yielded 2-phenyl-4-carbethoxy-5-methoxyoxazole, m. 72.degree.. Similarly, methylation of 2-phenyl-4-carbomethoxy-2-oxazolin-5-one gave 2-phenyl-4-carbomethoxy-5-methoxyoxazole, m. 98.degree., identical with that prepd. by the dehydration of BzNHCH(CO2Me)2 with PCl5 in CCl4. Attempts to obtain 5-alkoxyoxazole-4-carboxaldehydes covered a wide range. Formylation of BzNHCH2CO2Et and condensation with PhCH2NH2 in Et2O gave Et .beta.-benzylamino-.alpha.-benzamidoacrylate, R'NHCH:C(CO2Et)NHCOR (V; R = Ph, R' = PhCH2), m. 108.degree., cyclized by PBr3, POCl3 or PCl5 to 2-phenyl-4-benzylaminomethylene-5-oxazolone (VI), m. 134-7; Ac deriv., m. 140.degree.. In the same way, Et .beta.-benzylamino-.alpha.-phenylacetamido acrylate (VIa) with PBr3 gave 2-benzyl-4-benzylaminomethylene-5-oxazolone (VIb). Dehydration of Et .alpha.-benzamido-.beta.,.beta.-diethoxypropionate with PCl5-POCl3 yielded 2-phenyl-4-(ethoxymethylene)5-oxazolone (VII). Distn. of benzyl .alpha.-benzamido-.beta.,.beta.-diethoxypropionate gave a mixt. of products including benzyl .alpha.-benzamido-.beta.-ethoxyacrylate, m. 108-10.degree.; benzyl 2-phenyloxazole-4-carboxylate, m. 106-7.degree.; and VII. Attempts were made to cyclize .alpha.-benzyl-.beta.-methyl-DL-phenylpenicilloate, HN.CH(CO2R').CMe2.S.CHCH(NHCOR)CO2CH2Ph (VIII, R = Ph, R' = Me) (VIIIa), m. 130.degree.; dibenzyl-DL-phenylpenicilloate (VIII, R = Ph, R' = PhCH2) (VIIIb), m. 107-8.degree.; and DL-2-(carboxy-1-hexenoylaminomethyl)-5,5-dimethyl-4-carbometh-oxythiazolidine benzyl ester (VIII, R = 1-pentenyl, R' = Me). (VIIIc). The action of PCl5

on VIII and VIIta gave definite evidence of formation of thiazolidinylalkoxyoxazoles and cyclization of VIIIb and chromatographic purification of the product gave benzyl 2-(2-phenyl-5-benzyloxy-4-oxazolyl)-5,5-dimethylthiazolidine-4-carboxylate, m. 120-5.degree., absorption band at 2850 A. This reduced in EtOAc using a Pd-BaSO4 catalyst with 2 moles H, corresponding to removal of 2 PhCH2 groups, yielded a product with no-antibiotic activity. The simpler thiazolidines were also investigated. The reaction of 3-methyl-2-(benzamidocarbethoxymethyl)-thiazolidine with PCl5 gave a Cl-contg. product, converted by NaHCO3 to a probable sulfoxide. With PCl3, a product was obtained, which was converted by aq. KOH to 2-phenyl-4-hydroxymethylene-5-oxazolone. .beta.-Methylaminoethyl mercaptan-HI (from 15 g. of-2-methylthiazoline-MeI) in 20 ml. H2O was treated with 11 g. of crude Na salt of C,N-diformylglycine Et ester and neutralized with AcOH. After 15 hrs., NaHCO3 was added and the dried CHCl3 exts. (120 ml.) were concd. to give 6.55 g. of crude product, converted by treatment with 65.5 ml. of 10% HCl in EtOH to 4.4 g. of 2-(aminocarbethoxymethyl)-3-methylthiazolidine-2HCl (IX), m. 169-70.degree. (decompn.). IX (10.0 g.) in 36.1 ml. of 2N NaOH and 35 ml. EtOH was stirred with 6.6 g. PhCH2CS2Me for 45 hr., yielding 6.2 g. of colorless prisms of 2-[(phenylthioacetamido)carbethoxymethyl]-3-methylthiazolidine (X), m. 100-100.5.degree.. Addn. of 5.0 g X in 20 ml. CHCl3 to8.6 g. PhSO3Ag and 2.5 ml. pyridine in 70-ml. CHCl3 gave no identifiable org. products. The action of PhSO3Ag on Me .alpha.-phenylthioacetamido-.beta.,.beta.-diethoxypropionate yielded a product from which Me-benzylpenaldate and 2-benzyloxazole-4-carboxylic acid were isolated. By the PCl5 method it has been possible to prep. 4-(2-thiazolyl)-2-benzyl-5-ethoxyoxazole and 2-(p-nitrophenyl)-4-(5,5-dimethyl-4-carbomethoxy-2-thiazolinyl)-5-ethoxyoxazole. Attempts to introduce a CHO group into the 4-position of 2-phenyl-5-ethoxyoxazole (XI) using PhNMeCHO and POCl3 gave 2-phenyl-4-anilinomethylene-5-oxazoline. With AcNHBr, XI gave 2-phenyl-4-bromo-5-ethoxyoxazole, b0.8 128.degree.. The **oxidation** of 2-phenyl-4-methyl-5-ethoxyoxazole with SeO2, CrO3 or CrO2Cl2 resulted only in far-reaching breakdown. Condensation of PhCH2CH2COCO2H with AcNH2 or AmCONH2 gave .alpha.-acetamido- and .alpha.-caproyl-amino-.gamma.-phenylisocrotonic acid (XII). Treatment of the Et ester of XII with PCl5 afforded 2-amyl-4-styryl-5-ethoxyoxazole (XIII), disrupted by ozonization with production of BzOH and H2NCOCO2Et. XIII (5.7 g.) in 100 ml. glacial AcOH was stirred with 9.0 g. of Pb(OAc)4 for 3 hr., yielding 6.1 g. of 2-(1-acetoxyamyl)-4-styryl-5-ethoxyoxazole, m. 90-1.degree., degraded by distn. with loss of AcOH to 2-(1-pentenyl)-4-styryl-5-ethoxyoxazole (XIV), m. 100.degree., reduced catalytically to XIII. **Oxidation** of 2.83 g. XIV in 30 ml. tert-BuOH contg. 0.75 g. **H2O2** and 30 mg. OsO4 at 40-50.degree. for 2 hr. produced PrCHO and 5-ethoxy-4-styryloxazole-2-carboxaldehyde, m.130.5.degree., converted into the thiazolidine, m. 169.degree., using DL-penicillamine. Cyclization of AmCONHCH(CO2Et)2 in dry alc. free CHCl3 with PCl5, yielded

2-amyl-5-ethoxyoxazole-4-carboxylic acid (XIV), m. 63.4.degree., which on refluxing with PCl5 in CHCl3 gave Et 2-amyl-5-chlorooxazole-4-carboxylate (XV), b0.3 106.degree., catalytically reduced over Pd-BaSO4 in xylene to 2-amyloxazole-4-carboxylate, acidified to the free acid (XVa), m. 93-4.degree., converted by alc. EtONa to XIV. Treatment of 2 g. XVa with 1.09 g. PCl5 in 10 ml. CHCl3 and distn. produced the corresponding acid chloride, b0.3 96.degree., converted by (NH4)2CO3 in aq. **NH4OH** to the amide, m. 90.degree., which, distd. with P2O5, gave 2-amyl-5-chloro-4-cyanooxazole (XVb), b0.15 72.degree.. Reduction of 3.0 g. XVb in a suspension of 5.7 g. anhyd. SnCl2 in 40 ml. dry ether yielded unstable 2-amyl-5-chloro-**oxazole**-4-carboxaldehyde (XVI) (dinitrophenylhydrazone, m. 109-10.degree.), rearranging in 3 days at room temp. or on low pressure distn. to 2-amyloxazole-4-carboxylic acid chloride. Despite its instability, XVI readily combined with D-penicillamine-HCl to produce D-2-(2-amyl-5-chloro-4-oxazolyl)-5,5-dimethylthiazolidine-4-carbo-xylic acid-HCl, m. 150-2.degree. (decompn.). A similar series of compds. starting with Et 2-phenyl-5-ethoxyoxazole-4-carboxylate (XVII) and proceding to the thiazolidine was later prepd. XVII was sapond. to the cryst. acid (XVIIa), m. 148.degree., converted to the acid chloride (XVIIb), m. 105-6.degree., and to Et 2-phenyl-5-chlorooxazole-4-carboxylate, m. 68.degree., by refluxing in xylene for 1 hr. The corresponding acid (XVIII), m. 178-4.degree. (decompn.), was converted through the acid **chloride**, **m**. 118-20.degree., the amide, m. 183.degree., and the cyano compd., m. 112.degree., to 2-phenyl-5-chlorooxazole-4-carboxaldehyde (XIX), m. 91-3.degree.. The addn. of 1.14 g. aldehyde in 5 ml. EtOH and 10 ml. Et2O to 0.93 g. D-penicillamine-HCl in 5 ml. H2O and 0.65 g. AcONa, and passage of HCl through a filtered ethereal soln. of the reaction product, yielded 1.5 g. of 2-(2-phenyl-5-chloro-4-oxazolyl)-5,5-dimethylthiazolidine-4-carboxylic acid-HCl, m. 178.degree. (decompn.); Me ester-HCl, m. 120-2.degree.; free acid, m. 166.degree.; Me ester, m. 154.degree.; PhCH2 ester, m. 116-7.degree.. The thiazolidine exhibited a low order of antibiotic activity. A similar series of 2-benzyloxazole derivs. have been prepd. but the corresponding thiazolidine was inactive: 2-benzyl-5-ethoxy-**oxazole**-4-carboxylic acid, m. 118.degree. (decompn.); Et ester, b0.1 165.degree.; acid **chloride**, **m**. 81-2.degree.; 2-benzyl-5-chlorooxazole-4-carboxylic acid, m. 183.degree. (decompn.); Et ester, b0.02 170-5.degree.; acid **chloride**, **m**. 156-7.degree.; cyano compd., m. 49-50.degree.; aldehyde [dinitrophenylhydrazone, m. 173.degree.; semicarbazone, m. 185.degree. (decompn.)]; 2-(2-benzyl-5-chloro-4-oxazolyl)-5,5-dimethylthiazolidine-4-carbo-xylic acid-HCl, m. 176-7.degree. (decompn.). By refluxing 223 mg. XVIII in 3 ml. EtOH with 40 mg. Na, the Cl was replaced by the EtO group with formation of the corresponding acid, XVIIa. Distn. of the aldehyde XIX at 0.1 mm. gave 2-phenyloxazole-4-carboxylic acid **chloride**, **m**. 107-8.degree., transformed by stirring with cold concd. aq. **NH4OH** to the amide. Similarly the acid chloride XVIIb was converted to the amide, m. 118-19.degree., rearranged by heating for

a few rain. at 140.degree. to Et 2-phenyl-5-aminooxazole-4-carboxylate, m. 183deg;. All **oxazoles** found to undergo rearrangement may be formulated as 5-substituted **oxazoles** having a CO group in the 4-position, the general case being N:CR'.O.CR3:CCOR2 .fwdarw. N:CR'.O.CR2:CCOR3. Known examples of rearrangement are tabulated. Since the mol. is unstable when R3 and R2 are Et and Cl, resp., or when R3 and R2 are Cl and H, resp., it is deduced that the ethoxy aldehydes should show too great stability for successful synthesis. Cyclization of AmCONHCHCNCO2Et with P2O5 in CHCl3 gave 2-amyl-4-cyano-5-ethoxyoxazole, b0.03 98.degree., not reduced to the aldehyde by SnCl2 in Et2O. No 4-acetyloxazole was obtained from the MeMgI reaction product but the isolation of Et .alpha.-caproylaminoacetoacetate (dinitrophenylhydrazone, m. 166-7.degree.) indicated **oxazole** ring cleavage. The dehydration of 2-phenyl-5-ethoxyoxazole-4-carboxyamide with POCl3 or the ethylation with MeCHN2 of the crude oxazolone obtained by treating BzNHCHCNCO2H with Ac2O produced 2-phenyl-4-cyano-5-ethoxyoxazole, m. 77.degree.. The previously unknown 5-aminooxazoles were prepd. thus: treatment of 7 g. BzNHCH(CN)CO2Et, m. 138.degree., in 125 ml. CHCl3 with 6.2 g. PCl5 gave 4.5 g. Et 2-phenyl-5-aminooxazole-4-carboxylate, m. 185.degree., also prepd. by the action of POCl3 on Bz-NHCH(CONH2)CO2Et. Condensation of 1.18 g. H2NCH-(CO2Et)2 with 1.13 g. PhNHOEt by heating for 30 min. at 110.degree. gave the alternative compd., formulated as 2-phenyl-4-carbethoxy-5-imidazolone, m. 275.degree.. Similarly were prepd. Et 2-benzyl-5-aminooxazole-4-carboxylate (XX), m. 124.degree. and the corresponding 2-benzyl-4-carbethoxy-5-imidazolone, m. 254.degree. (decompn.); 2-(1-pentenyl)-4-carbethoxy-5-aminooxazole, m. 105.degree.; 2-amyl-4-carbethoxy-5-aminooxazole (XXa), m. 104.degree. and the corresponding 2-amyl-4-carbethoxy-5-imidazolone., m. 230.degree. (decompn.). On heating at 170.degree. for 5 min., XXa was entirely converted into AmCONHCH(CN.)CO2Et, m. 83.degree.. Heating either XX or PhCH2CONHCH(CN)CO2Et at 160-70.degree. for 15 min. produced an equil. mixt. with the open chain ester predominating. This same mixt. was formed by heating 2-benzyl-5-ethoxyoxazole-5-carboxylic amide, probably through initial rearrangement to the aminooxazole. Stirring 35 g. NCCH2CO2CH2Ph in 40 ml. of chilled glacial AcOH with satd. aq. NaNO2 (16.5 g.) yielded 29 g. NCC(NOH)CO2CH2Ph, m. 119.degree., reduced with Al-Hg to NCC(NH2)CO2CH2Ph, m. 95.degree., and benzoylated to NCCH(NHBz)CO2CH2Ph, m. 130.degree., converted by heating at 160.degree. for 5 min. to 2-phenyl-4-carbobenzyloxy-5-aminooxazole, m. 203.degree.. The 4-carbethoxy-5-aminooxazoles are feebly basic substances whose HCl salts dissociate readily. XXa.HCl, on boiling with ethereal EtOH gave AmCONHCH(CONH2)CO2Et, m. 150-1.degree., along with NH4Cl. Treatment of 1 g. XXa in 10 ml. dry Et2O at -15.degree. with NOCl gave a low yield of Et 2-amyloxazole-4-carboxylate, m. 92-3.degree.. Formylation of 15 g. BzNHCH2CN in 200 ml. HCO2Et and 100 ml. benzene by addn. of NaOEt (from 2.16 g. Na) in 100 ml. benzene produced, after treatment of the intermediate BzNHC(:CHONa)CO2H with dil. H2SO4 to pH 4, 2-phenyl-5-aminooxazole-4-carboxaldehyde (XXI), m. 172-3.degree., probably in the tautomeric

form.

=> d l39 1-11 cbib abs hitstr hitind

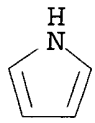
L39 ANSWER 1 OF 11 HCA COPYRIGHT 2003 ACS
138:196967 Chemical mechanical polishing method for noble metals. Brusic, Vlasta; De Rege, Francesco M.; Moeggenborg, Kevin J.; Cherian, Isaac K.; Zhou, Renjie (Cabot Microelectronics Corporation, USA). U.S. US 6527622 B1 20030304, 12 pp. (English). CODEN: USXXAM. APPLICATION: US 2002-54059 20020122.

AB The invention provides a method of polishing a substrate comprising a noble metal comprising (1) contacting the substrate with a CMP system and (2) abrading at least a portion of the substrate to polish the substrate. The CMP systems each comprise an abrasive and/or polishing pad, a liq. carrier, and optionally one or more polishing additives. In a 1st embodiment, the polishing additives are selected from the group consisting of diketones, diketonates, heterocyclic N-contg. compds., heterocyclic O-contg. compds., heterocyclic P-contg. compds., urea compds., N-contg. compds. that can be zwitterionic compds., salts thereof, and combinations thereof. In a 2nd embodiment, the polishing additive is a metal compd. with .gtoreq.2 **oxidn**. states and is used in conjunction with a peroxy-type **oxidizer**. In a 3rd embodiment, the CMP system comprises .alpha.-Al2O3 and fumed Al2O3, in which the wt. ratio of .alpha.-Al2O3 to fumed Al2O3 is .apprx.0.6:1 to .apprx.9:1.

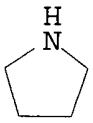
IT **109-97-7**, Pyrrole **123-75-1**, Pyrrolidine, processes **288-32-4**, Imidazole, processes **288-42-6**, Oxazole **7447-39-4**, Copper chloride (CuCl2), processes **7681-65-4**, Copper iodide (CuI) **7758-89-6**, Copper chloride (CuCl) **7758-94-3**, Iron chloride (FeCl2) **7773-01-5**, Manganese chloride (MnCl2) **7782-64-1**, Manganese fluoride (MnF2) **7783-86-0**, Iron iodide (FeI2) **7787-70-4**, Copper bromide (CuBr) **7789-19-7**, Copper fluoride (CuF2) **7789-28-8**, Iron fluoride (FeF2) **7789-45-9**, Copper bromide (CuBr2) **7789-46-0**, Iron bromide (FeBr2) **7790-33-2**, Manganese iodide (MnI2) **12514-32-8**, Iron bromide (FeBr) **13446-03-2**, Manganese bromide (MnBr2) **13478-41-6**, Copper fluoride (CuF) **13569-25-0**, Manganese fluoride (MnF) **13767-71-0**, Copper iodide (CuI2) **27846-09-9**, Iron chloride (FeCl) **33019-21-5**, Iron iodide (FeI) **41428-55-1**, Iron fluoride (FeF) **50646-06-5**, Manganese chloride (MnCl) **83334-44-5**, Manganese bromide (MnBr) **83334-45-6**, Manganese iodide (MnI) **185606-28-4**, Copper chloride (Cu2Cl3)
(polishing additive; chem. mech. polishing method for noble metals)

RN 109-97-7 HCA

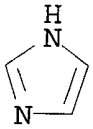
CN 1H-Pyrrole (9CI) (CA INDEX NAME)



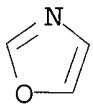
RN 123-75-1 HCA
CN Pyrrolidine (8CI, 9CI) (CA INDEX NAME)



RN 288-32-4 HCA
CN 1H-Imidazole (9CI) (CA INDEX NAME)



RN 288-42-6 HCA
CN Oxazole (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)



RN 7447-39-4 HCA
CN Copper chloride (CuCl2) (8CI, 9CI) (CA INDEX NAME)

Cl—Cu—Cl

RN 7681-65-4 HCA
CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu—I

RN 7758-89-6 HCA
CN Copper chloride (CuCl) (8CI, 9CI) (CA INDEX NAME)

Cl—Cu

RN 7758-94-3 HCA
CN Iron chloride (FeCl2) (8CI, 9CI) (CA INDEX NAME)

Cl—Fe—Cl

RN 7773-01-5 HCA
CN Manganese chloride (MnCl2) (8CI, 9CI) (CA INDEX NAME)

Cl—Mn—Cl

RN 7782-64-1 HCA
CN Manganese fluoride (MnF2) (8CI, 9CI) (CA INDEX NAME)

F—Mn—F

RN 7783-86-0 HCA
CN Iron iodide (FeI2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

I—Fe—I

RN 7787-70-4 HCA
CN Copper bromide (CuBr) (8CI, 9CI) (CA INDEX NAME)

Br—Cu

RN 7789-19-7 HCA
CN Copper fluoride (CuF2) (6CI, 8CI, 9CI) (CA INDEX NAME)

F—Cu—F

RN 7789-28-8 HCA
CN Iron fluoride (FeF2) (6CI, 8CI, 9CI) (CA INDEX NAME)

F—Fe—F

RN 7789-45-9 HCA
CN Copper bromide (CuBr2) (6CI, 8CI, 9CI) (CA INDEX NAME)

Br—Cu—Br

RN 7789-46-0 HCA
CN Iron bromide (FeBr2) (6CI, 8CI, 9CI) (CA INDEX NAME)

Br—Fe—Br

RN 7790-33-2 HCA
CN Manganese iodide (MnI2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

I—Mn—I

RN 12514-32-8 HCA
CN Iron bromide (FeBr) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Br—Fe

RN 13446-03-2 HCA
CN Manganese bromide (MnBr2) (6CI, 8CI, 9CI) (CA INDEX NAME)

Br—Mn—Br

RN 13478-41-6 HCA
CN Copper fluoride (CuF) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Cu—F

RN 13569-25-0 HCA
CN Manganese fluoride (MnF) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

F—Mn

RN 13767-71-0 HCA
CN Copper iodide (CuI2) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

I—Cu—I

RN 27846-09-9 HCA
CN Iron chloride (FeCl) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

Cl—Fe

RN 33019-21-5 HCA
CN Iron iodide (FeI) (7CI, 9CI) (CA INDEX NAME)

Fe—I

RN 41428-55-1 HCA

CN Iron fluoride (FeF) (7CI, 9CI) (CA INDEX NAME)

F—Fe

RN 50646-06-5 HCA
CN Manganese chloride (MnCl) (6CI, 7CI, 9CI) (CA INDEX NAME)

Cl—Mn

RN 83334-44-5 HCA
CN Manganese bromide (MnBr) (6CI, 9CI) (CA INDEX NAME)

Br—Mn

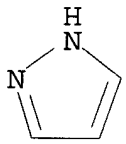
RN 83334-45-6 HCA
CN Manganese iodide (MnI) (6CI, 7CI, 9CI) (CA INDEX NAME)

I—Mn

RN 185606-28-4 HCA
CN Copper chloride (Cu2Cl3) (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
Cl	3	22537-15-1
Cu	2	7440-50-8

IT **288-13-1**, Pyrazole
(polishing slurry contg.; chem. mech. polishing method for noble metals)
RN 288-13-1 HCA
CN 1H-Pyrazole (9CI) (CA INDEX NAME)



IT **7722-84-1**, **Hydrogen peroxide**, processes
(polishing slurry **oxidizer**; chem. mech. polishing method for noble metals)
RN 7722-84-1 HCA
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

IC ICM B24B001-00
NCL 451028000; 451041000; 451036000
CC 76-2 (Electric Phenomena)
Section cross-reference(s): 66
IT Halogen compounds
Per compounds
(periodates, polishing **oxidizer**; chem. mech. polishing method for noble metals)
IT Permanganates
Peroxysulfates
(polishing **oxidizer**; chem. mech. polishing method for noble metals)
IT 65-71-4, Thymine 66-71-7D, 1,10-Phenanthroline, derivs. 71-30-7, Cytosine 73-24-5, Adenine, processes 73-40-5, Guanine 86-74-8, Carbazole 91-22-5, Quinoline, processes 91-64-5, Coumarin 103-47-9D, 2-(Cyclohexylamino) ethane sulfonic acid, salts **109-97-7**, Pyrrole 110-00-9, Furan 110-85-0D, Piperazine, derivs. 110-86-1, Pyridine, processes 110-88-3, Trioxane, processes 110-91-8, Morpholine, processes 120-72-9, Indole, processes **123-75-1**, Pyrrolidine, processes 123-91-1, Dioxane, processes 142-71-2, Copper diacetate 270-68-8, Isoindole **288-32-4**, Imidazole, processes **288-42-6**, Oxazole 289-95-2D, Pyrimidine, derivs. 290-37-9, Pyrazine 299-29-6, Iron Gluconate 496-15-1, Indoline 504-74-5, Imidazolidine 516-03-0, Iron Oxalate 527-09-3, Copper Gluconate 590-47-6, (Carboxymethyl)**trimethylammonium hydroxide** 637-82-1, Manganese Succinate 638-38-0, Manganese diacetate 640-67-5, Manganese Oxalate 646-06-0, Dioxolane 1132-61-2D, 3-(N-Morpholino)propanesulfonic acid, salts 1135-40-6D, 3-(Cyclohexylamino)propanesulfonic acid, salts 1309-37-1, Ferric oxide, processes 1313-13-9, Manganese oxide (MnO2), processes 1317-34-6, Manganese oxide (Mn2O3) 1317-38-0, Cupric oxide, processes 1344-43-0, Manganous oxide, processes 1345-25-1, Ferrous oxide, processes 2140-52-5, Iron acetate 2180-18-9, Manganese acetate 2338-05-8, Iron citrate 3094-87-9, Iron diacetate 3251-23-8, Copper nitrate (Cu(NO3)2) 3251-29-4, Copper nitrate (CuNO3) 3724-19-4D, 3-(3-Pyridyl)propionic acid, salts 4432-31-9D, 2-(N-Morpholino)ethanesulfonic acid, salts 5704-04-1D, N-Tris(hydroxymethyl)methylglycine, salts 5968-88-7, Manganese Citrate 6014-86-4, Manganese Phthalate 6485-39-8, Manganese Gluconate 6542-67-2D, Triazines, derivs. 7057-72-9, Copper Oxalate 7268-91-9, Copper Succinate 7268-92-0, Copper Malonate 7365-44-8D, N-Tris(hydroxymethyl)methyl-2-aminoethanesulfonic acid, salts 7365-45-9D, N-2-Hydroxyethylpiperazine-N'-2-ethanesulfonic acid, salts **7447-39-4**, Copper chloride (CuCl2), processes 7459-88-3, Iron Succinate **7681-65-4**, Copper iodide (CuI) **7758-89-6**, Copper chloride (CuCl) **7758-94-3**, Iron

chloride (FeCl2) 7758-98-7, Copper sulfate (CuSO4), processes **7773-01-5**, Manganese chloride (MnCl2) **7782-64-1**, Manganese fluoride (MnF2) **7783-86-0**, Iron iodide (FeI2) 7785-87-7, Manganese sulfate (MnSO4) **7787-70-4**, Copper bromide (CuBr) **7789-19-7**, Copper fluoride (CuF2) **7789-28-8**, Iron fluoride (FeF2) **7789-45-9**, Copper bromide (CuBr2) **7789-46-0**, Iron bromide (FeBr2) **7790-33-2**, Manganese iodide (MnI2) 10028-22-5, Iron sulfate (Fe2(SO4)3) 10030-90-7, Iron Succinate 10060-26-1, Manganese Citrate 10377-66-9, Manganese nitrate (Mn(NO3)2) 10402-15-0, Copper Citrate 11084-05-2D, Oxazine, derivs. 12125-21-2, Copper hydroxide (CuOH) 12315-09-2, Iron hydroxide (FeOH) 12411-15-3, Iron oxide (FeO2) **12514-32-8**, Iron bromide (FeBr) 13444-72-9, Manganese sulfate (Mn2(SO4)3) **13446-03-2**, Manganese bromide (MnBr2) **13478-41-6**, Copper fluoride (CuF) 13494-15-0, Iron Succinate **13569-25-0**, Manganese fluoride (MnF) 13598-36-2, Phosphonic acid **13767-71-0**, Copper iodide (CuI2) 13770-16-6, Manganese Perchlorate 13770-18-8, Copper Perchlorate 14013-86-6, Iron nitrate (Fe(NO3)2) 14024-17-0, Iron acetylacetonate 14024-18-1, Iron acetylacetonate 14220-26-9, Copper acetylacetonate 14284-89-0, Manganese acetylacetonate 14933-08-5, Dodecyldimethyl(3-sulfopropyl)**ammonium hydroxide** 15214-89-8D, 2-Acrylamido-2-methylpropanesulfonic acid, salts 15471-17-7D, derivs. 16052-06-5D, 4-(2-Hydroxyethyl)-1-piperazinepropanesulfonic acid, salts 16223-74-8, Copper Phthalate 18624-44-7, Iron hydroxide (Fe(OH)2) 18933-05-6, Manganese hydroxide (Mn(OH)2) 19445-25-1D, Perbromic acid, salts 20427-59-2, Copper hydroxide (Cu(OH)2) 26239-55-4D, N-2-Acetamidoiminodiacetic acid, salts 26445-06-7, Pyridine carboxaldehyde 27004-40-6, Copper tartrate **27846-09-9**, Iron chloride (FeCl) 28299-33-4D, Imidazoline, derivs. 28350-87-0, Pyrroline 28605-84-7D, Pyridinedicarboxylic acid, salts 31106-42-0, Iron Tartrate **33019-21-5**, Iron iodide (FeI) 33434-94-5, Pyridinemethanol 34521-19-2D, Pyridinesulfonic acid, salts 36011-52-6, Manganese hydroxide (MnOH) 36680-83-8, Manganese Tartrate 37275-48-2, Bipyridine 37382-23-3, Cerium hydroxide **41428-55-1**, Iron fluoride (FeF) **50646-06-5**, Manganese chloride (MnCl) 52667-78-4, Laurylsulfobetaine 54363-97-2D, Pyridylacetic acid, salts 55716-92-2, Manganese Malonate 60451-06-1, Benzopyrone 64431-96-5D, 1,3-Bis[tris(hydroxymethyl)methylamino]propane, salts 65312-38-1, Periodic acid, Copper salt 67414-58-8, Periodic acid (H5IO6), Manganese(4+) salt (1:1) 71799-92-3, Manganese Citrate **83334-44-5**, Manganese bromide (MnBr) **83334-45-6**, Manganese iodide (MnI) 88248-55-9, Periodic acid (HIO4), Manganese(2+) salt 96345-33-4, Pyrone 109191-31-3D, N-2-Acetamido-2-aminoethanesulfonic acid, salts 136483-59-5, Periodic acid (HIO4), iron salt 154037-35-1, Perchloric acid, iron salt 163686-95-1, Copper oxide (Cu2O3) **185606-28-4**, Copper chloride (Cu2Cl3) 211187-60-9D, Pyridineethanesulfonic acid, salts 235772-40-4, Copper hydroxide (Cu2(OH)3)

(polishing additive; chem. mech. polishing method for noble metals)

IT 57-13-6D, Urea, derivs. 67-56-1, Methanol, processes 89-00-9, 2,3-Pyridine dicarboxylic acid 98-97-5, 2-Pyrazinecarboxylic acid 121-57-3, Sulfanilic acid **288-13-1**, Pyrazole 499-83-2, 2,6-Pyridine dicarboxylic acid 586-98-1, 2-Pyridinemethanol 636-73-7, 3-Pyridinesulfonic acid 1121-60-4, 2-Pyridinecarboxaldehyde 1344-28-1, .alpha.-Alumina, processes 1452-77-3, 2-Pyridinecarboxamide 3859-41-4, 1,3-Cyclopentanedione 6419-36-9, 3-Pyridylacetic acid hydrochloride 6622-91-9, 4-Pyridylacetic acid hydrochloride 7727-54-0, Ammonium persulfate 10421-48-4 13115-43-0, 2-Pyridylacetic acid 15103-48-7, 2-Pyridinesulfonic acid 16179-97-8, 2-Pyridylacetic acid hydrochloride 53054-76-5, 4-Pyridineethanesulfonic acid 68922-18-9, 2-Pyridineethanesulfonic acid 71684-20-3, Cyclobutane dicarboxylic acid
(polishing slurry contg.; chem. mech. polishing method for noble metals)

IT **7722-84-1**, **Hydrogen peroxide**, processes
(polishing slurry **oxidizer**; chem. mech. polishing method for noble metals)

L39 ANSWER 2 OF 11 HCA COPYRIGHT 2003 ACS

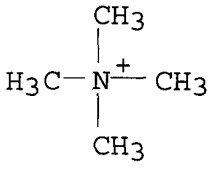
136:71491 Ligand effects in the copper catalyzed aerobic **oxidative** carbonylation of methanol to dimethyl carbonate (DMC). Raab, V.; Merz, M.; Sundermeyer, J. (Fachbereich Chemie, Philipps-Universitat Marburg, Marburg Lahn, D-35032, Germany). Journal of Molecular Catalysis A: Chemical, 175(1-2), 51-63 (English) 2001. CODEN: JMCCF2. ISSN: 1381-1169. Publisher: Elsevier Science B.V..

AB The influence of the type and amt. of added N-donor ligand, of the anion and the **oxidn**. state on the copper catalyzed aerobic **oxidative** carbonylation of methanol to di-Me carbonate (DMC) is systematically studied. A surprising increase in activity and selectivity compared to the plain copper halides CuXn (X = Cl, Br, I; n = 1, 2) is found for catalyst complexes with three or four N-methylimidazole (NMI) ligands at Cu+/2+, a ligand regime reminiscent of the oxygen activating copper enzymes in nature. However, a large excess of NMI inhibits the catalysis. The NMI complexes turned out to be more active and selective as redox catalysts and less active in the competing undesired hydrolytic cleavage of DMC into methanol and carbon dioxide by the unavoidable byproduct water. Furthermore, corrosion of stainless steel autoclaves is efficiently inhibited in the presence of .gtoreq.2 equiv. of NMI per copper halide.

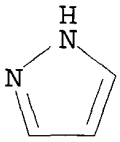
IT **75-59-2**, Tetramethylammonium **hydroxide**
(**ammonium** salt effects in copper catalyzed aerobic **oxidative** carbonylation of methanol to di-Me carbonate)

RN 75-59-2 HCA

CN Methanaminium, N,N,N-trimethyl-, hydroxide (9CI) (CA INDEX NAME)



IT **288-13-1**, Pyrazole **7447-39-4**, Copper dichloride, uses **7789-45-9**, Copper dibromide
(ligand effects in copper catalyzed aerobic **oxidative** carbonylation of methanol to di-Me carbonate)
RN 288-13-1 HCA
CN 1H-Pyrazole (9CI) (CA INDEX NAME)



RN 7447-39-4 HCA
CN Copper chloride (CuCl2) (8CI, 9CI) (CA INDEX NAME)

Cl—Cu—Cl

RN 7789-45-9 HCA
CN Copper bromide (CuBr2) (6CI, 8CI, 9CI) (CA INDEX NAME)

Br—Cu—Br

CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 67, 78
ST dimethyl carbon prepn methanol **oxidative** carbonylation copper catalyst; methylimidazole ligand effect copper catalyst dimethyl carbon prepn
IT Hydrolysis
(in copper catalyzed aerobic **oxidative** carbonylation of methanol to di-Me carbonate)
IT Carbonylation
Carbonylation catalysts
(**oxidative**; ligand effects in copper catalyzed aerobic **oxidative** carbonylation of methanol to di-Me carbonate)
IT 56-34-8, Tetraethylammonium chloride 68-05-3, Tetraethylammonium

iodide 71-91-0, Tetraethylammonium bromide **75-59-2**, Tetramethylammonium **hydroxide** 373-68-2, Tetramethylammonium fluoride 13435-20-6, Tetraethylammonium cyanide 52724-28-4, Tetraethylammonium carbonate
(**ammonium** salt effects in copper catalyzed aerobic **oxidative** carbonylation of methanol to di-Me carbonate)

IT 616-47-7, N-Methylimidazole 34946-82-2, Copper(II) triflate 64443-05-6
(for prepn. of copper complexes for aerobic **oxidative** carbonylation of methanol to di-Me carbonate)

IT 108-89-4, 4-Methylpyridine **288-13-1**, Pyrazole 930-36-9 1122-58-3, 4-Dimethylaminopyridine **7447-39-4**, Copper dichloride, uses **7789-45-9**, Copper dibromide 23570-25-4 24597-75-9 67588-86-7 68796-58-7 76821-67-5 76821-68-6 188743-62-6 368866-05-1 383898-09-7 383898-10-0 383898-11-1 383898-12-2 383898-13-3 383898-14-4
(ligand effects in copper catalyzed aerobic **oxidative** carbonylation of methanol to di-Me carbonate)

IT 383898-08-6P 383907-41-3P
(ligand effects in copper catalyzed aerobic **oxidative** carbonylation of methanol to di-Me carbonate)

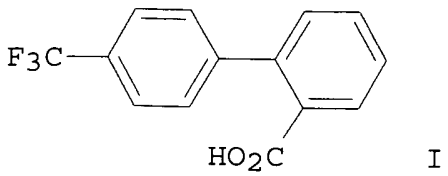
IT 616-38-6P, Dimethyl carbonate
(ligand effects in copper catalyzed aerobic **oxidative** carbonylation of methanol to di-Me carbonate)

IT 67-56-1, Methanol, reactions
(ligand effects in copper catalyzed aerobic **oxidative** carbonylation of methanol to di-Me carbonate)

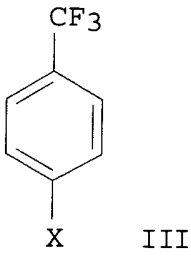
L39 ANSWER 3 OF 11 HCA COPYRIGHT 2003 ACS

135:76689 Procedure for the production of 4'-(trifluoromethyl)biphenyl-2-carboxylic acid by the coupling of 2-(dihydroxyboron)benzoic acid derivatives with 4-(leaving-group-substituted)-1-(trifluoromethyl)benzenes. Meudt, Andreas; Scherer, Stefan (Clariant G.m.b.H., Germany). Ger. Offen. DE 19963563 A1 20010705, 6 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1999-19963563 19991229.

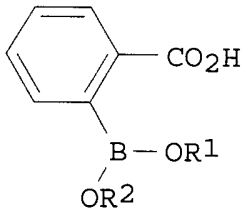
GI



I



III



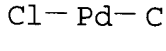
II

AB 4'-(Trifluoromethyl)biphenyl-2-carboxylic acid (I) is prepd. in high yield and selectivity by the coupling of 2-(dihydroxyboron)benzoic acid derivs. [II; R1, R2 = H, C1-4 alkyl; R1R2 = CH2CH2, CH2CH2CH2, CH2C(CH3)2CH2, C(CH3)2C(CH3)2, 1,2-phenylene, etc.] (e.g., o-carboxyphenylboric acid) with 4-(leaving-group-substituted)-1-(trifluoromethyl)benzenes (III; X = F, Cl, Br, I, N2+, arylsulfonate, or alkylsulfonate) (e.g., 4-chlorobenzotrifluoride) in presence of a base (e.g., sodium carbonate) and a Ni-, Pd- [e.g., PdCl2(PPh3)2], or Pt-metal catalyst.

IT **7647-10-1**, Palladium dichloride **13444-94-5**, Palladium dibromide
(catalysts in a procedure for the prodn. of 4'-(trifluoromethyl)biphenyl-2-carboxylic acid by the coupling of 2-(dihydroxyboron)benzoic acid derivs. with 4-(leaving-group-substituted)-1-(trifluoromethyl)benzenes)

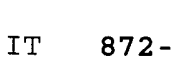
RN 7647-10-1 HCA

CN Palladium chloride (PdCl2) (6CI, 8CI, 9CI) (CA INDEX NAME)



RN 13444-94-5 HCA

CN Palladium bromide (PdBr2) (7CI, 8CI, 9CI) (CA INDEX NAME)

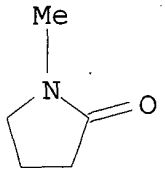


IT **872-50-4**, NMP, uses
(solvent; in a procedure for the prodn. of 4'-

(trifluoromethyl)biphenyl-2-carboxylic acid by the coupling of 2-(dihydroxyboron)benzoic acid derivs. with 4-(leaving-group-substituted)-1-(trifluoromethyl)benzenes)

RN 872-50-4 HCA

CN 2-Pyrrolidinone, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C07C051-347
ICS C07C063-72; C07F005-04

CC 25-17 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 45

IT Carboxylic acids, uses
(aliph., solvents; in the **oxidn**. of o-tolylboric acid or esters into the corresponding carboxylic acids)

IT **Oxidation**
(liq.-phase; of o-tolylboric acid or esters into the corresponding carboxylic acids)

IT 497-19-8, Sodium carbonate, reactions 1336-21-6, **Ammonium hydroxide**
(base; in a procedure for the prodn. of 4'-(trifluoromethyl)biphenyl-2-carboxylic acid by the coupling of 2-(dihydroxyboron)benzoic acid derivs. with 4-(leaving-group-substituted)-1-(trifluoromethyl)benzenes)

IT 71-48-7, Cobalt diacetate 638-38-0, Manganese diacetate
(catalyst in the **oxidn**. of o-tolylboric acid or esters into the corresponding carboxylic acids)

IT 3375-31-3, Palladium diacetate 7440-02-0, Nickel, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses **7647-10-1**, Palladium dichloride **13444-94-5**, Palladium dibromide 13965-03-2 14221-01-3, Tetrakis(triphenylphosphine)palladium 14264-16-5 19978-61-1 29964-62-3 59831-02-6 72287-26-4
(catalysts in a procedure for the prodn. of 4'-(trifluoromethyl)biphenyl-2-carboxylic acid by the coupling of 2-(dihydroxyboron)benzoic acid derivs. with 4-(leaving-group-substituted)-1-(trifluoromethyl)benzenes)

IT 57-13-6D, Urea, derivs., uses **872-50-4**, NMP, uses 7732-18-5, Water, uses
(solvent; in a procedure for the prodn. of 4'-(trifluoromethyl)biphenyl-2-carboxylic acid by the coupling of 2-(dihydroxyboron)benzoic acid derivs. with 4-(leaving-group-substituted)-1-(trifluoromethyl)benzenes)

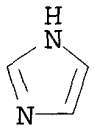
IT 64-19-7, Acetic acid, uses
(solvent; in the **oxidn**. of o-tolylboric acid or esters into the corresponding carboxylic acids)

L39 ANSWER 4 OF 11 HCA COPYRIGHT 2003 ACS
134:375093 Method for replenishing adhesion promoting baths for printed wiring board manufacture. Montano, Joseph R.; Wynja, Kimberly B.; Couble, Edward C.; Bayes, Martin W. (Shipley Company LLC, USA). Eur. Pat. Appl. EP 1104227 A2 20010530, 8 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 2000-309455 20001026. PRIORITY: US 1999-PV162403 19991029; US 2000-511543 20000223.

AB Disclosed are methods for replenishing adhesion promoting baths from an unstable state without discarding the bath. Methods of adhesion promoting substrates, such as printed wiring boards, using the replenished baths are also disclosed.

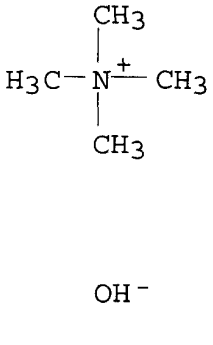
IT **288-32-4**, Imidazole, processes
(corrosion inhibitor; method for replenishing adhesion promoting baths for printed wiring board manuf.)

RN 288-32-4 HCA
CN 1H-Imidazole (9CI) (CA INDEX NAME)



IT **75-59-2**, Tetramethylammonium hydroxide **7447-40-7**, Potassium chloride, processes **7647-14-5**, Sodium chloride, processes **7722-84-1**, **Hydrogen peroxide**, processes
(method for replenishing adhesion promoting baths for printed wiring board manuf.)

RN 75-59-2 HCA
CN Methanaminium, N,N,N-trimethyl-, hydroxide (9CI) (CA INDEX NAME)



RN 7447-40-7 HCA
CN Potassium chloride (KCl) (9CI) (CA INDEX NAME)

RN 7647-14-5 HCA
CN Sodium chloride (NaCl) (9CI) (CA INDEX NAME)

Cl—Na

RN 7722-84-1 HCA
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

HO—OH

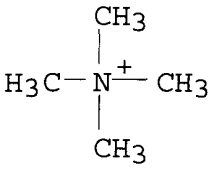
IC ICM H05K003-38
CC 76-14 (Electric Phenomena)
IT 51-17-2, Benzimidazole 95-14-7, 1H-Benzotriazole **288-32-4**, Imidazole, processes 27988-97-2, Tetrazole 37306-44-8, Triazole
(corrosion inhibitor; method for replenishing adhesion promoting baths for printed wiring board manuf.)
IT 56-34-8, Tetraethylammonium chloride 74-89-5, Methylamine, processes 75-04-7, Ethylamine, processes 75-31-0, Isopropylamine, processes 75-50-3, Trimethylamine, processes 75-57-0, Tetramethylammonium chloride **75-59-2**, Tetramethylammonium hydroxide 75-64-9, processes 77-98-5, Tetraethylammonium hydroxide 101-83-7, Dicyclohexylamine 102-69-2, Tripropylamine 102-70-5, Triallylamine 108-91-8, Cyclohexylamine, processes 109-73-9, n-Butylamine, processes 110-58-7, n-Amylamine 121-44-8, Triethylamine, processes 124-40-3, Dimethylamine, processes 1112-67-0, Tetrabutylammonium chloride 2052-49-5, Tetrabutylammonium hydroxide 3811-04-9, Potassium chlorate **7447-40-7**, Potassium chloride, processes 7647-01-0, Hydrochloric acid, processes **7647-14-5**, Sodium chloride, processes 7664-38-2, Phosphoric acid, processes 7664-93-9, Sulfuric acid, processes 7697-37-2, Nitric acid, processes **7722-84-1**, **Hydrogen peroxide**, processes 7775-09-9, Sodium chlorate 29508-45-0, Dimethyldiethylammonium chloride 95500-19-9, Dimethyldiethylammonium hydroxide 132245-49-9, 1-Propanaminium, N,N-bis(2-hydroxyethyl)-3-(isodecyloxy)-N-methyl-, chloride 132268-32-7, Isotridecyloxypropyl dihydroxyethyl methyl ammonium chloride
(method for replenishing adhesion promoting baths for printed wiring board manuf.)

L39 ANSWER 5 OF 11 HCA COPYRIGHT 2003 ACS
132:252797 Process of the **oxidation** of mercaptans to disulfides. Matson, Michael S.; Swindell, Harold J. (Phillips Petroleum Co., USA). U.S. US 6051740 A 20000418, 10 pp. (English). CODEN: USXXAM. APPLICATION: US 1998-210034 19981211.
AB The title process comprises contacting a mercaptan (e.g., MeSH) in the presence of an oxygen-contg. fluid, a catalyst (e.g., NaOH),

optionally a cocatalyst (e.g., a transition metal compd.), and further optionally a solvent or a surfactant or combination of a solvent and surfactant under a condition sufficient to **oxidize** the mercaptan to an org. disulfide (e.g., di-Me disulfide).

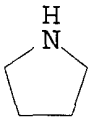
IT **75-59-2**, Tetramethylammonium hydroxide **123-75-1**, Pyrrolidine, uses **1344-67-8**, Copper chloride **7646-79-9**, Cobalt chloride, uses **7705-08-0**, Ferric chloride, uses **7789-43-7**, Cobalt bromide **10031-26-2**, Ferric bromide **11129-27-4**, Copper bromide
(process of the **oxidn**. of mercaptans to disulfides)

RN 75-59-2 HCA
CN Methanaminium, N,N,N-trimethyl-, hydroxide (9CI) (CA INDEX NAME)



OH^-

RN 123-75-1 HCA
CN Pyrrolidine (8CI, 9CI) (CA INDEX NAME)



RN 1344-67-8 HCA
CN Copper chloride (8CI, 9CI) (CA INDEX NAME)

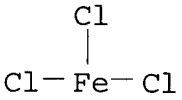
Component	Ratio	Component Registry Number
Cl	x	22537-15-1
Cu	x	7440-50-8

RN 7646-79-9 HCA
CN Cobalt chloride (CoCl2) (8CI, 9CI) (CA INDEX NAME)

Cl—Co—Cl

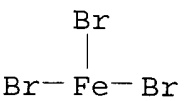
RN 7705-08-0 HCA

CN Iron chloride (FeCl3) (8CI, 9CI) (CA INDEX NAME)



RN 7789-43-7 HCA
CN Cobalt bromide (CoBr2) (8CI, 9CI) (CA INDEX NAME)

RN 10031-26-2 HCA
CN Iron bromide (FeBr3) (8CI, 9CI) (CA INDEX NAME)



RN 11129-27-4 HCA
CN Copper bromide (9CI) (CA INDEX NAME)

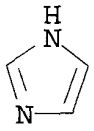
Component	Ratio	Component Registry Number
Br	x	10097-32-2
Cu	x	7440-50-8

IC ICM C07C319-14
NCL 568059000
CC 45-4 (Industrial Organic Chemicals, Leather, Fats, and Waxes)
Section cross-reference(s): 23, 48, 67
ST org disulfide manuf; thiol **oxidn** org disulfide manuf; mercaptan **oxidn** org disulfide manuf; **oxidative** coupling catalyst disulfide manuf; dimethyl disulfide manuf **oxidn** mercaptomethane
IT Alcohols, uses
(C11-15-secondary, ethoxylated; process of the **oxidn**. of mercaptans to disulfides)
IT Alcohols, uses
(amino; process of the **oxidn**. of mercaptans to disulfides)
IT Bases, uses
(inorg.; **oxidative** coupling catalysts for the conversion of mercaptans to disulfides)
IT Disulfides
(org. disulfides; process of the **oxidn**. of mercaptans to disulfides)
IT Bases, uses
(org.; **oxidative** coupling catalysts for the conversion

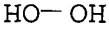
of mercaptans to disulfides)
IT Transition metal compounds
Transition metals, uses
(**oxidative** coupling catalysts for the conversion of mercaptans to disulfides)
IT Coupling reaction catalysts
(**oxidative**; bases for the conversion of mercaptans to disulfides)
IT Amines, uses
(process of the **oxidn**. of mercaptans to disulfides)
IT Thiols (organic), reactions
(process of the **oxidn**. of mercaptans to disulfides)
IT Naphthenic acids, uses
(salts; **oxidative** coupling catalysts for the conversion of mercaptans to disulfides)
IT 74-89-5, Methylamine, uses 75-04-7, Ethylamine, uses 75-31-0, Isopropylamine, uses 75-50-3, Trimethylamine, uses **75-59-2**, Tetramethylammonium hydroxide 77-98-5, Tetraethylammonium hydroxide 102-69-2, Tripropylamine 102-82-9, Tributylamine 107-10-8, Propylamine, uses 108-01-0, Dimethylaminoethanol 108-18-9, Diisopropylamine 108-91-8, Cyclohexylamine, uses 109-73-9, Butylamine, uses 109-89-7, Diethylamine, uses 110-58-7, Amylamine 110-89-4, Piperidine, uses 110-91-8, Morpholine, uses 111-26-2, Hexylamine 111-86-4, Octylamine 121-44-8, Triethylamine, uses **123-75-1**, Pyrrolidine, uses 124-40-3, Dimethylamine, uses 139-02-6, Sodium phenoxide 142-84-7, Dipropylamine 144-55-8, Sodium bicarbonate, uses 373-02-4, Nickel acetate 471-34-1, Calcium carbonate, uses 497-19-8, Sodium carbonate, uses 621-77-2, Triamylamine 1305-62-0, Calcium hydroxide, uses 1305-78-8, Calcium oxide, uses 1309-42-8, Magnesium hydroxide 1309-48-4, Magnesium oxide, uses 1310-58-3, Potassium hydroxide, uses 1310-65-2, Lithium hydroxide 1310-73-2, Sodium hydroxide, uses 1313-59-3, Sodium oxide, uses 1313-82-2, Sodium sulfide, uses 1313-99-1, Nickel oxide, uses **1344-67-8**, Copper chloride 1344-69-0, Copper hydroxide 1344-70-3, Copper oxide 2678-41-3, Barium phenoxide 4180-12-5, Copper acetate 4499-86-9, Tetrapropylammonium hydroxide 5793-84-0, Calcium phenoxide 5931-89-5, Cobalt acetate 7440-02-0D, Nickel, naphthenates, uses 7440-48-4D, Cobalt, naphthenates, uses 7440-50-8D, Copper, naphthenates, uses **7646-79-9**, Cobalt chloride, uses **7705-08-0**, Ferric chloride, uses 7758-98-7, Copper sulfate, uses **7789-43-7**, Cobalt bromide 10028-22-5, Ferric sulfate **10031-26-2**, Ferric bromide 10045-86-0, Ferric phosphate 10103-48-7, Copper phosphate 10124-43-3, Cobalt sulfate 10141-05-6, Cobalt nitrate 10381-36-9, Nickel phosphate 10402-29-6, Copper nitrate 10421-48-4, Ferric nitrate 11104-61-3, Cobalt oxide 11113-74-9, Nickel hydroxide **11129-27-4**, Copper bromide 13138-45-9, Nickel nitrate 13455-36-2, Cobalt phosphate 16721-80-5, Sodium hydrosulfide 17409-91-5, Cobalt phosphate
(process of the **oxidn**. of mercaptans to disulfides)
IT 75-18-3P, Dimethyl sulfide 110-81-6P, Diethyl disulfide

(process of the **oxidn**. of mercaptans to disulfides)
IT 74-93-1, Methyl mercaptan, reactions 75-08-1, Ethyl mercaptan
7782-44-7, Oxygen, reactions
(process of the **oxidn**. of mercaptans to disulfides)

L39 ANSWER 6 OF 11 HCA COPYRIGHT 2003 ACS
131:327615 Adhesive applicator with polymerization agents and/or bioactive material. Narang, Upvan; Nicholson, William Stuart Cooper (Closure Medical Corporation, USA). PCT Int. Appl. WO 9955394 A1 19991104, 43 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1999-US9373 19990430. PRIORITY: US 1998-69979 19980430.
AB A method of applying a bioactive agent and/or a polymn. or crosslinking rate modifier and/or a polymn. initiator to an applicator tip includes dissolving or dispersing the rate modifier, the initiator, and/or the bioactive agent in a low b.p. solvent, applying the resulting soln. or dispersion to the applicator tip, and drying the applicator tip. The initiator and/or rate modifier is preferably applied in a methanol solvent and distributed along a concn. gradient on the applicator tip. A figure showing the polymn. temp. of a 2-octyl cyanoacrylate compn. dispensed through applicator tips having an initiator applied with methanol and with acetone is presented.
IT **288-32-4**, Imidazole, biological studies
(adhesive applicator with polymn. agents and/or bioactive material)
RN 288-32-4 HCA
CN 1H-Imidazole (9CI) (CA INDEX NAME)



IT **7722-84-1**, **Hydrogen peroxide**, biological studies **7783-90-6**, Silver chloride, biological studies **7783-96-2**, Silver iodide
(adhesive applicator with polymn. agents and/or bioactive material)
RN 7722-84-1 HCA
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)



RN 7783-90-6 HCA
CN Silver chloride (AgCl) (9CI) (CA INDEX NAME)

Ag—Cl

RN 7783-96-2 HCA
CN Silver iodide (AgI) (9CI) (CA INDEX NAME)

Ag—I

IC ICM A61L025-00
CC 63-8 (Pharmaceuticals)
Section cross-reference(s): 38
IT 50-81-7, L-Ascorbic acid, biological studies 57-13-6, Urea, biological studies 61-54-1, Tryptamine 62-56-6, Thiourea, biological studies 74-79-3, L-Arginine, biological studies 78-67-1, Azobisisobutyronitrile 99-24-1, Methyl gallate 105-58-8, Diethyl carbonate 107-21-1, 1,2-Ethanediol, biological studies 110-05-4, Di-tert-butyl peroxide 122-52-1, Triethyl phosphite **288-32-4**, Imidazole, biological studies 301-10-0, Stannous octoate 603-35-0, Triphenylphosphine, biological studies 1191-50-0, Sodium tetradecyl sulfate 1309-42-8, Magnesium hydroxide 1344-09-8, Sodium silicate 1643-19-2, Tetrabutyl ammonium bromide 6701-17-3, 2-Octyl cyanoacrylate 6833-84-7, Nonactin 7631-90-5, Sodium bisulfite 7778-18-9, Calcium sulfate 9003-39-8, Povidone 9005-64-5, Polysorbate 20 9005-65-6, Polysorbate 80 14933-08-5, Dodecyldimethyl(3-sulfopropyl)**ammonium hydroxide** 17090-79-8, Monensin 106392-12-5, Poloxamer
(adhesive applicator with polymn. agents and/or bioactive material)
IT 55-56-1, Chlorhexidine 59-87-0, Nitrofurazone 60-54-8, Tetracycline 62-56-6D, Thiourea, quinolinone derivs., biological studies 64-19-7, Acetic acid, biological studies 127-65-1, Chloramine t 130-26-7, Clioquinol 139-12-8, Aluminum acetate 148-24-3, 8-Hydroxyquinoline, biological studies 532-31-0, Silver benzoate 534-16-7, Silver carbonate 547-32-0, Sodium sulfadiazine 563-63-3, Silver acetate 1314-13-2, Zinc oxide, biological studies 1404-26-8, Polymyxin B 1405-10-3 1405-20-5, Polymyxin b sulfate 1405-41-0, Gentamycin sulfate 1405-87-4, Bacitracin 1405-89-6, Bacitracin zinc 1406-05-9, Penicillin 1406-11-7, Polymyxin 6998-60-3, Rifamycin 7553-56-2, Iodine, biological studies 7681-52-9, Sodium hypochlorite 7722-64-7, Potassium permanganate **7722-84-1**, **Hydrogen peroxide**, biological studies 7761-88-8, Silver nitrate, biological studies **7783-90-6**, Silver chloride, biological studies **7783-96-2**, Silver iodide 8044-71-1, Cetrimide 9003-39-8D, Polyvidone, iodinated 10118-90-8, Minocycline 10294-26-5, Silver sulfate 11081-39-3, Polymycin 12650-69-0, Mupirocin 13292-46-1, Rifampin 16923-58-3 16941-12-1,

Chloroplatinic acid 18323-44-9, Clindamycin 20667-12-3, Silver oxide 22199-08-2, Silver sulfadiazine 25322-68-3 25655-41-8, Betadine 26027-38-3, Nonoxynol 9 36701-38-9, Silver citrate 41748-43-0, Chlorhexidine sulfate 66219-86-1, Zinc sulfadiazine 77146-42-0, Chlorhexidine phosphanilate 85721-33-1, Ciprofloxacin 104534-80-7D, Quinolinone, thiourea derivs. 248259-31-6, Calcium chloroplatinate
(adhesive applicator with polymn. agents and/or bioactive material)

L39 ANSWER 7 OF 11 HCA COPYRIGHT 2003 ACS
128:175633 Oligomeric anilines and soluble polypyrroles as sensors for volatile organic compounds. MacDiarmid, Alan G.; Zhang, Wanjin; Feng, Jing (The Trustees of the University of Pennsylvania, USA; MacDiarmid, Alan G.; Zhang, Wanjin; Feng, Jing). PCT Int. Appl. WO 9804908 A1 19980205, 99 pp. DESIGNATED STATES: W: AU, CA, CN, JP, NZ, US, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE. (English). CODEN: PIXXD2. APPLICATION: WO 1997-US13148 19970725. PRIORITY: US 1996-22694 19960726.

AB The present invention generally describes sensors and sensor arrays for volatile org. compds., wherein the sensor comprises at least two electrodes and a compn. which comprises an electroactive material. Generally, the electroactive material is a sol. polypyrrole or an oligomeric aniline, such as tetraaniline, octaaniline or hexadecaaniline. The compn. may further comprise a dopant anion or dopant acid.

IT **7647-14-5**, Sodium chloride (NaCl), uses **7722-84-1**, **Hydrogen peroxide**, uses
(synthesis and purifn. of oligomeric anilines for use in sensors for detn. of volatile org. compds.)

RN 7647-14-5 HCA
CN Sodium chloride (NaCl) (9CI) (CA INDEX NAME)

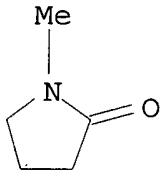
Cl—Na

RN 7722-84-1 HCA
CN Hydrogen peroxide (H2O2) (9CI) (CA INDEX NAME)

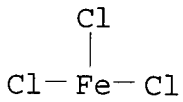
HO—OH

IT **872-50-4**, N-Methyl-2-pyrrolidinone, reactions
7705-08-0, Iron chloride (FeCl3), reactions
(synthesis and purifn. of oligomeric anilines for use in sensors for detn. of volatile org. compds.)

RN 872-50-4 HCA
CN 2-Pyrrolidinone, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 7705-08-0 HCA
CN Iron chloride (FeCl3) (8CI, 9CI) (CA INDEX NAME)



IC ICM G01N027-26
ICS G01N007-00; G01N027-02; C25B013-00
CC 80-2 (Organic Analytical Chemistry)
Section cross-reference(s): 38, 59
IT 60-29-7, Diethyl ether, uses 110-82-7, Cyclohexane, uses 1336-21-6, **Ammonium hydroxide 7647-14-5**, Sodium chloride (NaCl), uses **7722-84-1**, **Hydrogen peroxide**, uses
(synthesis and purifn. of oligomeric anilines for use in sensors for detn. of volatile org. compds.)
IT 100-63-0, Phenylhydrazine 101-54-2, N-Phenyl-1,4-phenylenediamine 302-01-2, Hydrazine, reactions **872-50-4**, N-Methyl-2-pyrrolidinone, reactions 2198-59-6, N-Phenyl-1,4-phenylenediamine hydrochloride **7705-08-0**, Iron chloride (FeCl3), reactions 7727-54-0, Ammonium peroxydisulfate 56426-15-4 202981-17-7
(synthesis and purifn. of oligomeric anilines for use in sensors for detn. of volatile org. compds.)

L39 ANSWER 8 OF 11 HCA COPYRIGHT 2003 ACS
116:135528 Performance-oriented packaging standards; changes to classification, hazard communication, packaging and handling requirements based on UN standards and agency initiative. (United States Dept. of Transportation, Washington, DC, 20590-0001, USA). Federal Register, 55(246), 52402-729 (English) 21 Dec 1990. CODEN: FEREAC. ISSN: 0097-6326.
AB The hazardous materials regulations under the Federal Hazardous Materials Transportation Act are revised based on the United Nations recommendations on the transport of dangerous goods. The regulations cover the classification of materials, packaging requirements, and package marking, labeling, and shipping documentation, as well as transportation modes and handling, and incident reporting. Performance-oriented stds. are adopted for packaging for bulk and nonbulk transportation, and SI units of measurement generally replace US customary units. Hazardous

material descriptions and proper shipping names are tabulated together with hazard class, identification nos., packing group, label required, special provisions, packaging authorizations, quantity limitations, and vessel stowage requirements.

IT **75-59-2**, Tetramethylammonium hydroxide **123-75-1**, Pyrrolidine, miscellaneous **124-43-6** **1344-67-8**, Copper chloride **7446-70-0**, Aluminum chloride (AlCl3), miscellaneous **7487-94-7**, Mercuric chloride, miscellaneous **7550-45-0**, Titanium tetrachloride, miscellaneous **7632-51-1**, Vanadium tetrachloride **7646-78-8**, Stannic chloride, miscellaneous **7646-85-7**, Zinc chloride, miscellaneous **7647-18-9**, Antimony pentachloride **7681-49-4**, Sodium fluoride, miscellaneous **7705-07-9D**, Titanium trichloride, mixts. **7705-08-0**, Ferric chloride, miscellaneous **7718-98-1**, Vanadium trichloride **7722-84-1**, **Hydrogen peroxide** (**H2O2**), miscellaneous **7727-15-3**, Aluminum bromide **7758-94-3**, Ferrous chloride **7783-56-4**, Antimony trifluoride **7783-70-2**, Antimony pentafluoride **7783-81-5**, Uranium hexafluoride **7783-82-6**, Tungsten hexafluoride **7786-30-3D**, Magnesium chloride (MgCl2), mixt. with chlorates **7788-97-8**, Chromic fluoride **7789-23-3**, Potassium fluoride **7789-61-9**, Antimony tribromide **10025-91-9**, Antimony trichloride **10026-11-6**, Zirconium tetrachloride **10241-05-1**, Molybdenum pentachloride **37320-91-5**, Mercury iodide **100920-70-5**
(packaging and transport of, stds. for)

L39 ANSWER 9 OF 11 HCA COPYRIGHT 2003 ACS

105:2984 A versatile transition metal salt reaction for a wide range of common biochemical reagents: an instantaneous and quantifiable color test. Fleming, Nigel; Nixon, Ralph A. (Mailman Res. Cent., McLean Hosp., Belmont, MA, 02178, USA). Analytical Biochemistry, 154(2), 691-701 (English) 1986. CODEN: ANBCA2. ISSN: 0003-2697.

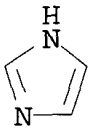
AB A rapid and sensitive spot test amenable to visual or spectrophotometric quantitation was developed for a wide variety of biochem. reagents by utilizing CuCl2 and its large no. of related colored compds. This assay is potentially a widely applicable multipurpose test for rapidly detecting the presence of unknown substances. Combination of the test sample with the working reagent results in the immediate formation of a distinctive colored product that can be precipitable. Some compds. require the further addn. of NaOH to generate the distinctively colored product. Distinctive reactions occur with the following reagents, and their limit of visual detection is indicated in parentheses: NH4HCO3 (12.5 mM), NH4OAc (25 mM), **NH4OH** (0.1%), (NH4)2SO4 (2%), (NH4)2SO8 (0.02 mM), L-(+)-cysteine (0.07 mM), dithiothreitol (DTT) (1.25 mM), EDTA (0.6 mM), ethylene glycol bis(.beta.-aminoethyl ether) N,N'-tetraacetic acid (5 mM), D-glucose (6 mM), glycerol (0.3%), imidazole (12.5 mM), DL-methionine (100 mM), mercaptoethanol

(0.05%), NaN3 (19 mM, 0.1%), Na dithionite (0.25%), Na metabisulfite (25 mM), NaNO2 (6.2 mM), Na periodate (3.1 mM), Na2SO3 (12.5 mM), Na thiosulfate (12.5 mM), sucrose (6 mM), and N,N,N',N'-tetramethylethylenediamine (0.05%). A distinctive exothermic reaction occurs with **H2O2**, but without color change. Compds. reacting insignificantly include 50 mM Tris buffer, urea, N,N'-methylenebisacrylamide, SDS, iso-PrOH, NaF, TCA, PhOH, mannose, K2HPO4, guanidine HCl, chloramine-T, MgCl2, and boric acid, where the solids were tested at approx. 10 mg/mL. Spectrophotometric std. curves were developed for DTT and NaN3 utilizing the clear supernatants resulting from these reactions. Combinations of at least 4 reagents could be discriminated, as demonstrated with mixts. of glucose, NaN3, EDTA, and DTT. In addn., (NH4)2SO4 could be detected to a limit of 4% in the presence of protein, DTT, and EDTA in a 50 mM Tris buffer. Spot tests were developed which utilized reagent-impregnated filter paper and gave distinctive colored products on addn. of 5 .mu.L of test sample.

IT **7447-39-4**, uses and miscellaneous
(color reaction of, with biochem. reagents for spot test anal.)
RN 7447-39-4 HCA
CN Copper chloride (CuCl2) (8CI, 9CI) (CA INDEX NAME)

Cl—Cu—Cl

IT **288-32-4**, analysis
(detection of, by color reaction with copper chloride, biochem. anal. in relation to)
RN 288-32-4 HCA
CN 1H-Imidazole (9CI) (CA INDEX NAME)



CC 9-5 (Biochemical Methods)
Section cross-reference(s): 79, 80
IT **7447-39-4**, uses and miscellaneous
(color reaction of, with biochem. reagents for spot test anal.)
IT 50-99-7, analysis 52-90-4, analysis 56-81-5, analysis 57-50-1, analysis 59-51-8 60-00-4, analysis 60-24-2 67-42-5 110-18-9 **288-32-4**, analysis 631-61-8 1066-33-7 1336-21-6 3483-12-3 7632-00-0 7681-57-4 7727-54-0 7757-83-7 7772-98-7 7775-14-6 7783-20-2, analysis 7790-28-5 26628-22-8
(detection of, by color reaction with copper chloride, biochem. anal. in relation to)

L39 ANSWER 10 OF 11 HCA COPYRIGHT 2003 ACS
104:58436 Electrochemical reduction of 7-ketolithocholic acid to

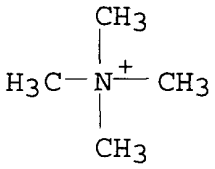
ursodeoxycholic acid. Bharucha, Kekhusroo R.; Slemon, Clarke E. (Canada Packers Inc., Can.). U.S. US 4547271 A 19851015, 6 pp. (English). CODEN: USXXAM. APPLICATION: US 1984-649682 19840912.

AB The process may be conducted alone or in conjunction with a simultaneous electrochem. **oxidn**. of chenodeoxycholic acid to 7-ketolithocholic acid. Solvents for the electrochem. reaction which promote stereoselectivity to ursodeoxycholic acid include: Me2SO, tetramethylurea, DMF, dimethylacetamide, N-methylpyrrolidinone, 1,3-dimethyl-2-imidazolidinone, 1,3-dimethyl-3,4,5,6-tetrahydro-2(1H)-pyrimidinone, hexamethylphosphoric triamide, ethylenediamine, and their mixts. The electrolyte is selected from a group consisting of alkyl-substituted ammonium salts and their alkali **metal halides** and mixts. Hg is a preferred electrode, due to its promotion of stereoselectivity to ursodeoxycholic acid. Ursodeoxycholic acid is potentially an important compd. for dissolving gallstones in the mammalian body.

IT **75-59-2**
(in ketolithocholic acid electroredn.)

RN 75-59-2 HCA

CN Methanaminium, N,N,N-trimethyl-, hydroxide (9CI) (CA INDEX NAME)



IT **7447-41-8**, uses and miscellaneous
(ursodeoxycholic acid electroprepn. from ketolithocholic acid in stereoselective solvent contg.)

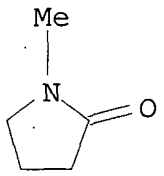
RN 7447-41-8 HCA

CN Lithium chloride (LiCl) (9CI) (CA INDEX NAME)

IT **872-50-4**, properties
(ursodeoxycholic acid electroprepn. from ketolithocholic acid in, stereoselectivity in relation to)

RN 872-50-4 HCA

CN 2-Pyrrolidinone, 1-methyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



IC ICM C25B003-00
NCL 204-59R
CC 72-4 (Electrochemistry)
Section cross-reference(s): 1, 32
ST electroprepn ursodeoxycholic acid; ketolithocholic acid electrochem redn; chenodeoxycholic acid electrochem **oxidn**; hexamethylphosphoric triamide ursodeoxycholic acid electrosynthesis; ethylenediamine ursodeoxycholic acid electrosynthesis
IT **Oxidation**, electrochemical
(of chenodeoxycholic acid to ketolithocholic acid)
IT Alkali **metal halides**, uses and miscellaneous
Quaternary ammonium compounds, uses and miscellaneous
(ursodeoxycholic acid electroprepn. from ketolithocholic acid in stereoselective solvent contg.)
IT 7440-32-6, uses and miscellaneous
(anode, ruthenized, for chenodeoxycholic acid **oxidn**.)
IT 7440-18-8, uses and miscellaneous
(anodes from titanium and, for chenodeoxycholic acid **oxidn**.)
IT **75-59-2**
(in ketolithocholic acid electroredn.)
IT 7726-95-6, reactions
(**oxidn**. by electrogeneration of, of chenodeoxycholic acid)
IT 474-25-9
(**oxidn**. of, electrochem., to ketolithocholic acid)
IT **7447-41-8**, uses and miscellaneous
(ursodeoxycholic acid electroprepn. from ketolithocholic acid in stereoselective solvent contg.)
IT 67-68-5, properties 68-12-2, properties 80-73-9 107-15-3, properties 127-19-5 632-22-4 680-31-9, properties **872-50-4**, properties 7226-23-5
(ursodeoxycholic acid electroprepn. from ketolithocholic acid in, stereoselectivity in relation to)

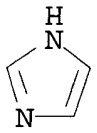
L39 ANSWER 11 OF 11 HCA COPYRIGHT 2003 ACS
91:158559 Modified azulmic acids. Wagner, Kuno; Findeisen, Kurt (Bayer A.-G., Fed. Rep. Ger.). Ger. Offen. DE 2806020 19790816, 82 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1978-2806020 19780214.
AB The formation of 0.5-15% -CHNH2- and 0.5-55% -C(NH2)(CO2-)- groups in azulmic acid (HCN polymer) [26746-21-4] stabilizes the polymer and reduces the free monomer content, making the product suitable for such uses as fertilizers. The modified polymer may be obtained

by HCN polymn. with basic catalysts under hydrolytic conditions or by treatment of the aq. polymer with acids, metal salts, bases, H2O, natural materials or derivs., and(or) **oxidizing** agents. Thus, 108 g (2 equivs.) conventionally-prepd. azulmic acid (evolving >5000 ppm HCN after 2 h storage at 50.degree.) in 1 L water was heated 16 h at 100.degree. with 1 mol H3PO4, giving a product contg. 0.1 mol -CHNH2- and 0.38 mol -C(NH2)(CO2-)- groups.

IT **288-32-4**, uses and miscellaneous
(hydrocyanic acid polymer stabilization by)

RN 288-32-4 HCA

CN 1H-Imidazole (9CI) (CA INDEX NAME)



IT **7487-94-7DP**, complexes with hydrocyanic acid polymers
7550-45-0DP, complexes with hydrocyanic acid polymers
7646-79-9DP, complexes with hydrocyanic acid polymers
7646-85-7DP, complexes with hydrocyanic acid polymers
7758-95-4DP, complexes with hydrocyanic acid polymers
7772-99-8DP, complexes with hydrocyanic acid polymers
10108-64-2DP, complexes with hydrocyanic acid polymers
(prepn. of)

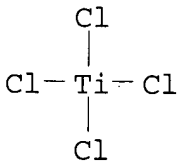
RN 7487-94-7 HCA

CN Mercury chloride (HgCl2) (8CI, 9CI) (CA INDEX NAME)

Cl—Hg—Cl

RN 7550-45-0 HCA

CN Titanium chloride (TiCl4) (T-4)- (9CI) (CA INDEX NAME)



RN 7646-79-9 HCA

CN Cobalt chloride (CoCl2) (8CI, 9CI) (CA INDEX NAME)

Cl—Co—Cl

RN 7646-85-7 HCA

CN Zinc chloride (ZnCl2) (9CI) (CA INDEX NAME)

Cl—Zn—Cl

RN 7758-95-4 HCA
CN Lead chloride (PbCl2) (8CI, 9CI) (CA INDEX NAME)

Cl—Pb—Cl

RN 7772-99-8 HCA
CN Tin chloride (SnCl2) (8CI, 9CI) (CA INDEX NAME)

Cl—Sn—Cl

RN 10108-64-2 HCA
CN Cadmium chloride (CdCl2) (7CI, 8CI, 9CI) (CA INDEX NAME)

Cl—Cd—Cl

IC C08G073-06; C01C003-00
CC 36-4 (Plastics Manufacture and Processing)
Section cross-reference(s): 19
IT 917-61-3
(catalysts, contg. **aq. ammonia**, for polymn. of hydrogen cyanide)
IT **288-32-4**, uses and miscellaneous 7664-38-2, uses and miscellaneous 10124-41-1 10257-55-3 12133-28-7
(hydrocyanic acid polymer stabilization by)
IT 7446-18-6DP, complexes with hydrocyanic acid polymers **7487-94-7DP**, complexes with hydrocyanic acid polymers **7550-45-0DP**, complexes with hydrocyanic acid polymers **7646-79-9DP**, complexes with hydrocyanic acid polymers **7646-85-7DP**, complexes with hydrocyanic acid polymers 7720-78-7DP, complexes with hydrocyanic acid polymers **7758-95-4DP**, complexes with hydrocyanic acid polymers 7758-98-7DP, complexes with hydrocyanic acid polymers 7761-88-8DP, complexes with hydrocyanic acid polymers **7772-99-8DP**, complexes with hydrocyanic acid polymers 7783-03-1DP, complexes with hydrocyanic acid polymers 7785-87-7DP, complexes with hydrocyanic acid polymers **10108-64-2DP**, complexes with hydrocyanic acid polymers 10361-44-1DP, complexes with hydrocyanic acid polymers 14644-61-2DP, complexes with hydrocyanic acid polymers 16903-35-8DP, complexes with hydrocyanic acid polymers 26746-21-4DP, metal complexes 71680-52-9P 71680-53-0P
(prepn. of)

=> d l40 1-17 ti

L40 ANSWER 1 OF 17 HCA COPYRIGHT 2003 ACS
TI Use of carbonyl compounds in hair treating compositions to enhance color fastness of dyed hair

L40 ANSWER 2 OF 17 HCA COPYRIGHT 2003 ACS
TI Electrorheological fluids containing polyanilines

L40 ANSWER 3 OF 17 HCA COPYRIGHT 2003 ACS
TI Manufacture of alpha-alumina particles of nanometer size

L40 ANSWER 4 OF 17 HCA COPYRIGHT 2003 ACS
TI Preparation of 5-pyrazolesulfonyl chloride derivatives as intermediates for N-pyrazolesulfonyl-N'-heterocyclylurea herbicides

L40 ANSWER 5 OF 17 HCA COPYRIGHT 2003 ACS
TI Method of producing oxetanocin derivative

L40 ANSWER 6 OF 17 HCA COPYRIGHT 2003 ACS
TI Hydrazone derivatives for reduction of a partially bleached silver image

L40 ANSWER 7 OF 17 HCA COPYRIGHT 2003 ACS
TI Chlorothiophenes

L40 ANSWER 8 OF 17 HCA COPYRIGHT 2003 ACS
TI The catalytic hydrogenation of aromatic-substituted **imidazoles**. V. (p-Biphenylyl)**imidazoles**

L40 ANSWER 9 OF 17 HCA COPYRIGHT 2003 ACS
TI II. Pyreno[3',2':4,6]-1,3-thiazinecarbocyanines

L40 ANSWER 10 OF 17 HCA COPYRIGHT 2003 ACS
TI New unsaturated heterocyclic systems. I

L40 ANSWER 11 OF 17 HCA COPYRIGHT 2003 ACS
TI Steroidal [3,2-c]**pyrazoles**. II. Androstanes, 19-norandrostanes, and their unsaturated analogs

L40 ANSWER 12 OF 17 HCA COPYRIGHT 2003 ACS
TI Nature of light induced degradation products of diazo derivatives. VI. The photosynthesis of cyclopentadiene and **pyrrole** derivatives

L40 ANSWER 13 OF 17 HCA COPYRIGHT 2003 ACS
TI Synthesis of **thiazole** derivatives. X. Nitrobenzothiazolylcarbinols and their transformations

L40 ANSWER 14 OF 17 HCA COPYRIGHT 2003 ACS
TI Cyanine dyes from 2-methylnaphthoquinonothiazole

L40 ANSWER 15 OF 17 HCA COPYRIGHT 2003 ACS
TI Trinuclear cyanine dyes. V. Attempted synthesis of dyes isomeric

with those of the neocyanine type

L40 ANSWER 16 OF 17 HCA COPYRIGHT 2003 ACS
TI Reaction of .alpha.,.beta.-ethynyl ketones with active methyl and methylene compounds

L40 ANSWER 17 OF 17 HCA COPYRIGHT 2003 ACS
TI Triphenylmethyl Chloride, Disphenylcarbamic Chloride, and Cyanuric Bromide in their Action as Acid Halides

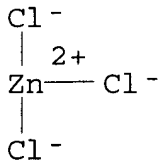
=> d l40 1,2,6 cbib abs hitstr hitind

L40 ANSWER 1 OF 17 HCA COPYRIGHT 2003 ACS
138:308929 Use of carbonyl compounds in hair treating compositions to enhance color fastness of dyed hair. Oberkobusch, Doris; Hoeffkes, Horst; Hollenberg, Detlef; Gross, Wibke; Akram, Mustafa; Moeller, Hinrich (Henkel K.-G.a.A., Germany). Ger. Offen. DE 10148671 A1 20030410, 32 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2001-10148671 20011002.

AB The invention concerns a method to increase color fastness of dyed hair that includes the treatment of hair before or after the dyeing process with a compn. that contains aryl, heteroaryl or cyclic aliph. carbonyl compds. with the exception of anthraquinone derivs. The treatment compns. further can contain polymers, surfactants, direct dyes protein hydrolyzates, UV filters, but they do not contain **oxidative** dyes. Thus a hair dye contained (g): Hydrenol D 8.5; Lorol 2.0; Eumulgin B2 1.5; Texapon NSO 15.0; Dehyton K 12.5; sodium sulfite 0.5; ascorbic acid 0.2; 4,5-diamino-1-(2-hydroxyethyl)**pyrazole** x H2SO4 1.03; **ammonia** (25% **aq**. soln.) to pH 10; water to 100. The dye was used in expts. for coloring hair. Samples were not treated after dyeing or treated with a compn. that contained (g): Texapon NSO 15.0; Dehyton K 12.5; Hydrenol D 8.50; Lorol 2.00; Eumulgin B2 0.75; sodium sulfite 0.25; ascorbic acid 0.20; 3-dicyanmethylene indane-1-one 1.16; **ammonia** (25% **aq**. soln.) to pH 10; water to 100. Treated and untreated hair samples were exposed to washing tests and color fastness was measured; the treated samples were superior by 4.44 units.

IT **15201-05-5D**, salts
(use of carbonyl compds. in hair treating compns. to enhance color fastness of dyed hair)

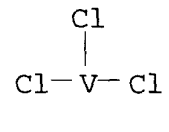
RN 15201-05-5 HCA
CN Zincate(2-), tetrachloro-, (T-4)- (9CI) (CA INDEX NAME)



IC ICM A61K007-13
CC 62-3 (Essential Oils and Cosmetics)
IT Hair preparations
(dyes, **oxidative**, excluded; use of carbonyl compds. in hair treating compns. to enhance color fastness of dyed hair)
IT 82-86-0, Acenaphthenequinone 84-11-7, 9,10-Phenanthrenequinone 90-15-3, 1-Naphthalenol 91-56-5, Isatin 99-61-6, 3-Nitrobenzaldehyde 458-36-6, Coniferylaldehyde 492-73-9, 2,2'-Pyridil 524-42-5, 1,2-Naphthoquinone 552-89-6, 2-Nitrobenzaldehyde 555-16-8, 4-Nitrobenzaldehyde, biological studies 611-09-6, 5-Nitroisatin 615-94-1, 2,5-Dihydroxy-p-benzoquinone 623-27-8, Terephthalaldehyde 626-19-7, Isophthalaldehyde 830-74-0 1080-74-6 1477-49-2 2066-93-5, 1,2-Naphthoquinone-4-sulfonic acid 2835-95-2 2835-99-6 3433-54-3 6203-18-5 6369-59-1 14874-70-5D, Tetrafluoroborate, salts **15201-05-5D**, salts 16053-58-0D, salts 16722-51-3D, salts, biological studies 16887-00-6D, Chloride, salts 16919-18-9D, Hexafluorophosphate, salts 19012-03-4 20461-54-5, Iodide, biological studies 24959-67-9D, Bromide, salts 37181-39-8D, salts 54628-24-9D, salts 61394-93-2, 4-Nitroisatin 112656-95-8 118860-85-8 122438-74-8D, salts 149330-25-6 223398-02-5 223398-08-1 364343-79-3 507490-23-5 507490-24-6D, salts
(use of carbonyl compds. in hair treating compns. to enhance color fastness of dyed hair)

L40 ANSWER 2 OF 17 HCA COPYRIGHT 2003 ACS
126:174085 Electrorheological fluids containing polyanilines. Bryant, Charles P.; Lal, Kasturi; Pialet, Joseph W. (Lubrizol Corp., USA). U.S. US 5595680 A 19970121, 15 pp., Cont.-in-part of U.S. 5,437,806. (English). CODEN: USXXAM. APPLICATION: US 1994-223802 19940406. PRIORITY: US 1991-774398 19911010; US 1993-167592 19931214.
AB Non-aq. electrorheol. fluids are described which comprise a major amt. of a hydrophobic liq. phase and a minor amt. of a dispersed particulate phase of a polyaniline prepd. by polymg. aniline in the presence of an **oxidizing** agent and .apprx.0.1-1.6 mol of an acid per mol of aniline to form an acid salt of polyaniline, and thereafter treating the acid salt with a base. The polyanilines may be prepd. from aniline or from mixts. of aniline and other monomers such as **pyrroles**, vinyl pyridines, vinyl pyrrolidones, thiophenes, vinylidene halides, phenothiazines, imidazolines, N-phenyl-p-phenylene diamines or mixts. thereof. The electrorheol. fluids prepd. in accordance with the present invention are useful in a variety of applications including flotational coupling devices, such as clutches for automobiles or industrial motors, transmissions, brakes or tension-control devices; and linear damping devices, such as shock absorbers, engine mounts and hydraulic actuators.
IT **7718-98-1**, Vanadium trichloride
(in prepn. of polyanilines for electrorheol. fluids)

RN 7718-98-1 HCA
CN Vanadium chloride (VCl3) (8CI, 9CI) (CA INDEX NAME)



IC ICM C10M171-00
ICS C10M169-04
NCL 252077000
CC 51-8 (Fossil Fuels, Derivatives, and Related Products)
Section cross-reference(s): 76
IT 104-15-4, p-Toluenesulfonic acid, uses 1310-73-2, Sodium hydroxide, uses **7718-98-1**, Vanadium trichloride 7775-09-9, Sodium chlorate 107991-44-6, Emery 3004
(in prepn. of polyanilines for electrorheol. fluids)
IT 1336-21-6, **Ammonium hydroxide** 7553-56-2, Iodine, uses 7647-01-0, Hydrochloric acid, uses 7664-38-2, Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses
(in prepn. of polyanilines for electrorheol. fluids)
IT 7727-54-0, Ammonium persulfate
(**oxidizing** agent; in prepn. of polyanilines for electrorheol. fluids)
IT 25233-30-1P, Polyaniline 89183-45-9P, Polyaniline hydrochloride 97222-83-8P, Aniline-**pyrrole** copolymer 121008-90-0P, Aniline-N-phenyl-p-phenylenediamine copolymer 187143-77-7P
(prepn. of polyanilines for electrorheol. fluids)

L40 ANSWER 6 OF 17 HCA COPYRIGHT 2003 ACS
64:60396 Original Reference No. 64:11357a-h Hydrazone derivatives for reduction of a partially bleached silver image. (Gevaert Photo-Producten N. V.). BE 665033 19651208, 65 pp. (Unavailable). PRIORITY: GB 19640608.
GI For diagram(s), see printed CA Issue.
AB A colored photographic image is obtained in alk. media by redn. of a partially bleached Ag image with hydrazones, and coupling of the **oxidn**. products obtained with compds. contg. a reactive H, such as common color couplers. A mixt. of 3.07 g. 3-methyl-2-(methylthio)benzothiazolium Me sulfate, 2.16 g. p-H2NNHSO2C6H4CO2H, and 50 cc. pyridine is agitated 12 hrs. at 20.degree. to give 3-methyl-2-benzothiazolone (4'-carboxyphenylsulfonyl)-hydrazone, m. >260.degree.. Similarly prepd. are the following I (R, R1, X, and m.p. given): Me, 4,3-HO(HO2C)C6H3, H, 260.degree. (decompn.); CH2CO2H, Me, H, .apprx.200.degree. (decompn.) (EtOH-H2O). Similarly prepd. are (m.p. given): 1,4-dimethyl-2-quinolone (3'-carboxy-41-hydroxyphenylsulfonyl)hydrazone (II), 250.degree. (decompn.); III, 170.degree. (EtOH); 10-methyl-9-acridone (4'-carboxyphenylsulfonyl)hydrazone, 195.degree. (decompn.) (iso-PrOH); 1-methyl-2-phenyl-4-quinolone (31-carboxy-41-hydroxyphenylsulfonyl)hydrazone, .apprx.210.degree. (decompn.); I[R

= Me, R1 = 4,3-HO(HO2C)C6H3, X = MeO], --, HCl salt m. .apprx.230 (decompn.). 3-Methyl-2-benzothiazolone hydrazone (8.95 g.) is treated with 12.5 g. m-FSO2C6H4SO2Cl in 250 cc. MeCN in the presence of 7.5 g. ZnO to give I(R = Me, R1 = p-FSO2C6H4, X = H) (IV), m. 198.degree. (MeCN). IV (20.5 g.) is treated with 250 cc. N NaOH to give I (R = Me, R1 = p-HO3SC6H4, X = H), m. >260.degree. (aq. HOCH2CH2OMe). A mixt. of 15 cc. N2H4.H2O, 14.2 g. 4,3-HO(HO2C)C6H3SO2Cl, and 200 cc. dioxane is kept at .apprx.20.degree. to give 4,3-HO(HO2C)C6H3SO2NHNH2, m. 230.degree. (decompn.) (H2O). A mixt. of 261 cc. BzCH2CO2Et, 140 cc. PhNH2, and HCl is kept at .apprx.20.degree. to give PhC(NHPh):CHCO2Et (V), m. 71.degree. (MeOH). V (195 g.) in 2.2 l. Ph2O is heated at 250.degree. to give 2-phenyl-4-quinolinol (VI), m. 250.degree.. A mixt. of 260 g. VI and 321 cc. POCl3 is heated 2 hrs. at 80.degree. to give 2-phenyl-4-chloroquinoline (VII), m. 60.degree. (EtOH). A mixt. of 47.8 g. VII and 56 cc. Me2SO4 is heated 2 hrs. at 120.degree. to give 1-methyl-2-phenyl-4-chloroquinolinium Me sulfate (VIII). Similarly prepd. are 2-(methylthio)-3-(carboxymethyl)benzothiazolium **bromide**, **m**. 180.degree. (decompn.); 2-amino-6-methoxybenzothiazole-MeI (IX), m. >260.degree.; 2-(methylthio)-3-methyl-6-methoxybenzothiazolium **iodide**, **m**. .apprx.165.degree.. VIII (102.7 g.) is treated with 46.4 g. 2,5-HO(H2NNHSO2)C6H3CO2H to give 1-methyl-2-phenyl-4-quinolone (31-carboxy-41-hydroxyphenylsulfonyl)hydrazone (X). IX (21 g.) in a mixt. of 100 cc. concd. **NH4OH** and 100 cc. ether is treated with 160 cc. HOAc and with 39 g. NaNO2 in 80 cc. H2O to give 14.5 g. 2-nitrosoamino-3-methyl-6-methoxybenzothiazole (XI), m. 190.degree. (decompn.). XI (14.5 g.) is treated with 21 g. P2S5 to give 10.8 g. 3-methyl-6-methoxy-2-benzothiazolthione, m. 118.degree. (C5H6). The hydrazones are very sol. in aq. alkali and are resistant to atm. **oxidn**. They are **oxidized** by a Ag image, bleached until the black Ag is no longer discernible and the soly. of the Ag salts formed is 10-7 to 10-11 at 25.degree. so that they do not dissolve in the developer. This can be obtained with solns. contg. CuCl2, FeCl3, K3Fe(CN)6, Na2Cr2O7 and HCl, K2S2O8 and HCl, or CuSO4 and HCl. The dyes resulting from this process can be changed in shade by complex formation with metal salts. The use of the above hydrazone derivs. with various naphthol couplers gives dyes with .lambda.max. varying between 495 and 670 m.mu.; with other OH compds. between 510 and 555 m.mu.. With pyrazolone couplers the .lambda.max. varies between 400 and 510 m.mu.; with other active methylene compds., between 410 and 515 m.mu.; and with aromatic amines between 505 and 560 m.mu.. I[R = Me, R1 = 4,3-HO(HO2C)C6H3, X = H] and **pyrrole** give a dye with .lambda.max. at 455 m.mu.. Similarly, other compds. were prepd. (starting materials and .lambda.max. in m.mu. of product given): II, Ph2NH, 604; II, 2,4,1-HO(HO3S)C10H5NH2, 470; II, 1,8-naphthosultam (XII), 535; X, XII, 615.

CC 46 (Dyes)

IT Catalysts and Catalysis
(in **oxidn**., of 1-butene)

IT 7440-48-4, Cobalt
(catalysts, in **oxidn**. of butane)
IT 7439-96-5, Manganese 7440-36-0, Antimony 7440-47-3, Chromium
7440-61-1, Uranium 7440-66-6, Zinc
(catalysts, in **oxidn**. of butene)
IT 7440-02-0, Nickel
(in alkylation of N-phenyl-p-phenylenediamine with pentyl alc., in **oxidn**. of butene)
IT 106-99-0, 1,3-Butadiene
(manuf. of, by 1-butene **oxidn**.)
IT 106-98-9, 1-Butene
(**oxidn**. of, to 1,3-butadiene)